

SPECIAL ISSUE OF "THE FRUIT WORLD."

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JANUARY, 1935.

A BOOK OF DAILY REFERENCE

FOR ORCHARDISTS, FRUIT TRADERS, AND
ALL CONNECTED WITH THE INDUSTRY,
containing inter alia a review of the History and
Development of the Fruit Industry — Export of
Dried, Canned and Fresh Fruits — Articles on
Spraying — Packing — Manuring — Planting —
Marketing — Cold Storage, etc., etc.



*The Fruit World
Annual*

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Price 1/6

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A Book of Daily Reference for Commercial Fruitgrowers and all interested in the Fruitgrowing Industry.

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EDITORIAL.

THE IMPORTANCE of the Australian fruit industry will be more adequately realised as a result of this, the 1935 edition of the "Fruit World Annual." From the public point of view it is of value that the extent and importance of the industry should be realised, for only thus will due recognition be given.

The information and statistics herein set forth show the development to date of the various branches of the fruit industry, fresh, canned and dried. No doubt those engaged in the several sections of the industry will peruse with interest the information relating to the other sections.

As regards research, considerable progress has been made, but it must be recognised that much remains to be done.

The Departments of Agriculture in the several States are to be congratulated on the valuable work being done. Each State possesses trained officers who have won the esteem of the producers and their fellow scientists.

In addition, the Commonwealth Council for Scientific and Industrial Research has proved its value.

This organisation, with its Central Council and State Executives, is subsidised by the Commonwealth Government, and in addition, receives grants from many primary and secondary industries for research along specific lines. The confidence which has thus been placed in the C.S.I.R. by producing and industrial organisations is a compliment to the Council; such confidence has not been misplaced, as many far-reaching beneficial results have accrued.

We desire to add our heartiest congratulations to the Chief Executive Officer, Sir David Rivett, on the honor conferred upon him in his knighthood. Sir David has proved a true friend of the Australian fruit producer.

Just now the Council for Scientific and Industrial Research is concentrating on thrips investigation: this is being done in conjunction with the Waite Institute, Adelaide, the Universities and the Departments of Agriculture in the several States.

No section of the industry is free from the menace of thrips infestation. It is of value that the scientists can now accurately forecast the presence or absence of plague conditions.

It means much to a grower to be told "There will be no thrips infestation this season." And, of course, the scientists are definitely at work to provide a remedy when a plague is imminent, i.e., the development of toxic and repellent dusts or sprays.

Following the success of the spraying experiments in Victoria to control black spot of Pears, a request has been made to the Department of Agriculture for similar experiments with Apples. The 1934-35 season has proved

to be a particularly bad one for black spot in Apples—and this despite the full spraying programme conducted by some of our ablest growers.

This matter is of Commonwealth wide interest, as also is the need for a non-arsenical spray for Apples and Pears, and the control of citrus red scale. This by no means exhausts the list of problems awaiting attention.

It is pleasing in this connection to note the new emphasis on the value of science to industry. It is not so many years ago that primary producers were openly sceptical as to the value of the scientist with his test-tubes, cultures and microscopes. Now, fortunately, the last mentioned attitude is a thing of the past, and to-day the scientist is cordially appreciated.

One aspect of research, however, has not yet been fully explored, i.e., marketing research. This applies more particularly to the producer of fresh fruit, for the canners and dried fruit organisations have given close attention to this matter over a period of years. It is to be hoped that fresh fruit growers will soon visualise the importance of specialised study regarding the possibilities of the Australian market for fruit. The present hit or miss methods of marketing, the absence of standards, the periodical gluts and famines are to be deplored.

The Australian Apple and Pear Export Council, and its affiliated Associations in the several States, are doing exceedingly valuable work in connection with the export trade.

The door of opportunity is wide open for a similar organisation to similarly attend to the needs of the markets right at our doors. Organisation, standardisation and advertising have definitely put other sections of industry on the road to prosperity. Why not fresh fruit? The "National Mark" system, so successful in England and New Zealand, has all the possibilities for success under Australian conditions.

The Editor and staff take this opportunity of wishing a prosperous New Year to all readers.

Suggestions for the inclusion of items in future editions of the "Annual" would be appreciated.

With open minds, we can observe successful methods elsewhere and adapt the same to our conditions, or else develop along new lines, for Australians are not lacking in enterprise, initiative or energy.

So this edition of the "Annual" goes forth with goodwill to all, and expressing the hope that the fruit industry will be found in every way prosperous for those engaged in it, and that it will fulfil its claim to be a national asset.

Insect Pests and Fungoid Diseases

Control Methods Described and Illustrated.

FOR THE CONTROL of insect pests and fungus diseases of trees, fruits and plants, science has come to the aid of the producer, and now remedies are at hand, which, if applied with thoroughness at the right period, will enable growers to produce good crops harvested seasonably.

With reference to the thrips, science is industriously at work, and the results of the three-year programme of the Council for Scientific and Industrial Research, will be eagerly awaited.

Research work is being continuously conducted in all branches of entomology and plant pathology, thus improved methods are being constantly brought forward.

Thoroughness Essential.

Keep the trees healthy by correct orchard practices—cultivation, manuring, pruning, irrigation. Spraying is only one part of the work. Pests severely attack sickly trees.

The seasons are divided thus:—

Spring—September, October, November.

Summer—December, January, February.

Autumn—March, April, May.

Winter—June, July, August.

In Winter.—Spray deciduous trees with red oil, or lime-sulphur, to check San Jose, mussel and olive scales, red spider, bryobia mite, Pear phytophthorus.

For several fruit rots, spray in mid-winter, after pruning, with Bordeaux, 6-3-40. Spray vines with red oil, 1-20, to kill vine scale.

Late Winter (and before buds open in the spring).—Spray with red oil for scales and mites, and with Bordeaux or lime-sulphur for fungi. Lime-sulphur also destroys red spider and woolly aphids.

In Spring.—Spray deciduous trees and vines with Bordeaux or Burgundy mixture against black spot, leaf curl and other fungi. Spray with arsenate of lead for codlin moth and leaf-eating insects. Many growers use for the "calyx" spray on Apples and Pears, a combination of arsenate of lead with a fungicide. As a fungicide some growers use lime-sulphur, others Bordeaux or Burgundy. In spring spray Peach, Nectarine, Plum trees, roses, shrubs and garden plants with nicotine preparations to kill aphides, scales and plant bugs. Spray Apricot trees with Bordeaux 6-4-40 plus 1 lb. lime casein spreader during pink bud stage.

In Summer.—Spray citrus trees with oils and fumigate with hydrocyanic acid gas to kill scales. Continue with arsenate of lead on deciduous trees; white summer spraying oils will kill the codlin eggs, and generally control aphids, red spider and other orchard pests. Continue with nicotine for aphides and scales. Dust with nicotine or pyrethrum insecticides.

In Autumn.—Spray deciduous trees with arsenate of lead for leaf and fruit-eating pests. Spray Apricot trees with Bordeaux 6-4-40 plus 1 lb. lime casein spreader to 100 gallons of spray, this being one of the necessary sprays to control scab or shot hole.

The use of spreaders to obtain more even distribution and better adhesion is recommended.

Always cleanse the vats and hoses immediately after using, otherwise copper sprays will injure the equipment, whilst oil emulsions may be spoilt by traces of lime, tobacco, etc.

FUNGOID DISEASES.

Fungoid diseases are classed in two divisions—(1) **Ephiphytic**—the chief vine fungus being powdery mildew of the vine (*Oidium Tuckerii*) which lives on external tissues, and can be treated after infection. (2) **Endophytic**—including downy mildew, black spot or anthracnose of the vine; and to a lesser degree shot hole of Apricot, leaf curl of Peach, and scab of Pear. As these live on internal tissues, preventive spraying is imperative. After infection, fungicide cannot cure, but they can prevent further ravages. Principal fungicides—Bordeaux and Burgundy Mixtures, lime-sulphur; atomised sulphur (sulphur finely broken up and suspended in water) checks various scabs, mildew, freckles, fruit rots and mites.

DRIED FRUIT PESTS.

The four worst insect pests attacking dried fruits are:—(1) the Indian Meal Moth (*Plodia interpunctella*); (2) the Dried Fruit Moth (*Ephestia cautella*); (3) the Sawtoothed Grain Beetle (*Silvanus surinamensis*), and (4) the Rust Red Flour Beetle (*Tribolium ferrugineum*). They breed freely for eight months of the year; in summer they breed freely outdoors. Dried fruits are infected on drying greens, but more through sweat boxes, fruit refuse, sacks, etc. The principal infection is in storage in city warehouses.

Control.—Keep packing houses and equipment scrupulously clean. Fumigate city warehouses. Vacuum fumigation kills both grubs and eggs. Methods of spraying the dried fruit to destroy eggs have yielded good results.

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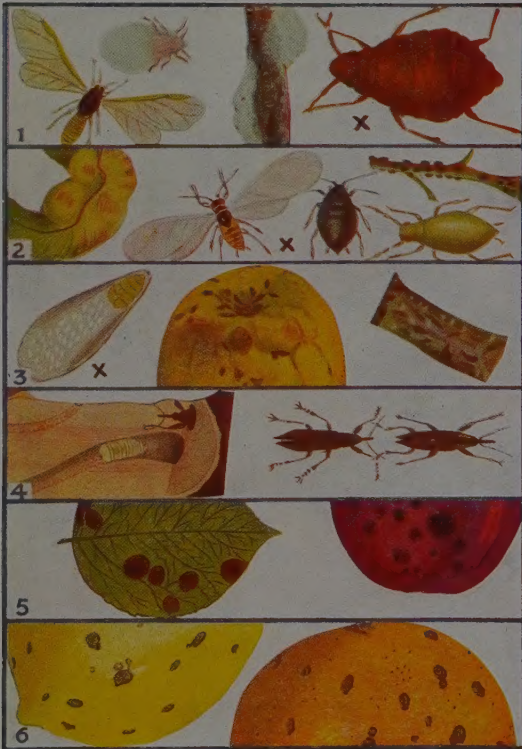
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INSECT PESTS AND PLANT DISEASES (Continued).

Pest or Disease. (X magnified.)

Description of Pests as Illustrated.



Woolly Aphis.—This aphis lives in hollows and crevices, on the roots, trunks, and limbs of the Apple tree, causing very unsightly swellings, made by the pricking of their beak-like rostrums (or sucking tubes), thus absorbing the juices of the tree. They are manifested mainly by a white, downy appearance on the twigs, limbs and branches.

Aphis of Peach (Black and Green).—Black and Green Aphis infest branches and leaves, causing the latter to curl and dry up. They are very troublesome when the young shoots are beginning to grow in spring.

Black aphis infest roots.

Various Aphis also attack Roses, Carnations, Pansies, and garden plants.

Apple Mussel Scale.—Attacks the fruit and branches of Apples, Pears, Plums, etc., disfigures the fruit; absorbs sap. If unchecked, will encrust the trunk and main arms.

Apricot Beetles.—Small Weevils with a tapering body, most destructive; they do great damage by boring and tunnelling into Apricot trees.

Black Spot of Apple and Pears.—These fungi attack both fruit and leaves. On the fruit they form dark green, often circular, velvety patches, and generally cause the fruit to crack. On the leaves they appear as round or oval spots.

Black Spot of Orange and Lemon.—The round sunken spots are of a dark brown color, and nestling in the centre are the minute, black, punctiform pustules, visible to the naked eye.

Methods of Control of Insect Pests and Plant Diseases (illustrated above).

(1) **APHIS, WOOLLY (*Eriosoma lanigera*).**—Attacks Apple and Pear trees. Introduce *Aphelinus parasiticus* into orchards. Spray forcibly with nicotine solutions, white oils in summer, and Red Oil in winter. A combination winter spray, Nicotine Sulphate, Red Oil and soap has been found effective. Use pyrethrum dusts. Grow trees having blight-proof stocks.

(2) **APHIS OF PEACH [Black and Green] (*Anuraphis persicae-niger* and *Myzus persicae*).**—Use Tar distillate, 1 in 35, Lime Sulphur during the winter, and White Oil, Tobacco, Benzole Emulsion or Pyrethrum Dusts in the summer. It may be necessary to spray the trees several times in the summer. Keep ground near trees free from weeds.

Spray in winter before buds show any signs of movement with coal tar distillate 1 in 35 to destroy eggs.

For the various aphis attacking Roses, Carnations, garden plants and vegetables, the foregoing remedies are satisfactory.

(3) **APPLE MUSSEL SCALE (*Lepidosaphes ulmi*).**—Spray in winter with Miscible Red Oils, 1 in 25, or Lime Sulphur, 1 in 15. Spray in summer with White Oils or nicotine solutions.

(4) **APRICOT BEETLES (*Belus* sp.).**—Spray with Arsenate of Lead. Inject Bisulphide of Carbon into tunnels made by beetles.

(5) **BLACK SPOT OF APPLE (*Venturia inaequalis*).**—Spray with Bordeaux Mixture 6-4-40 at the green tip stage, followed by Lime Sulphur 2-80 at petal fall stage, followed by Lime Sulphur 1 in 80 two weeks later.

For Pear Spot (*Venturia pirina*), spray with Bordeaux Mixture, 6-4-40, when the young folded leaves are just protruding from the bud, and again at a slightly later stage, when the young folded leaves and the blossom bud have separated. The blossom buds would still be green.

Some growers follow up with 4-5 ozs. of blue-stone with every 80 gallon vat of lead spray, using also 1 lb. lime casein spreader, or Bordeaux mixture 3-3-50 three weeks after the fruit has formed.

(6) **BLACK SPOT OF ORANGE and LEMON (*Phoma citricarpa*).**—Spray with neutral Bordeaux, 6-4-80, at the first appearance of blossom. If this stage is missed, spray 6-4-100 when fruit is well set. Citrus trees, where the drainage is not efficient, are more prone to this disease than trees on well-drained plantations. Use Sulphate of Iron, $\frac{1}{2}$ lb. to each tree.

THE CODLIN MOTH



THE CODLIN MOTH.

1. Codlin Moth about to lay eggs on leaf and in calyx of Apple.
2. Life Cycle.—Eggs, caterpillar or larvae, chrysalid and moth (perfect insect).
3. Showing caterpillar (enlarged) in Apple.
4. Chrysalid and cocoon in bark (enlarged).
5. Codlin Moth (enlarged).

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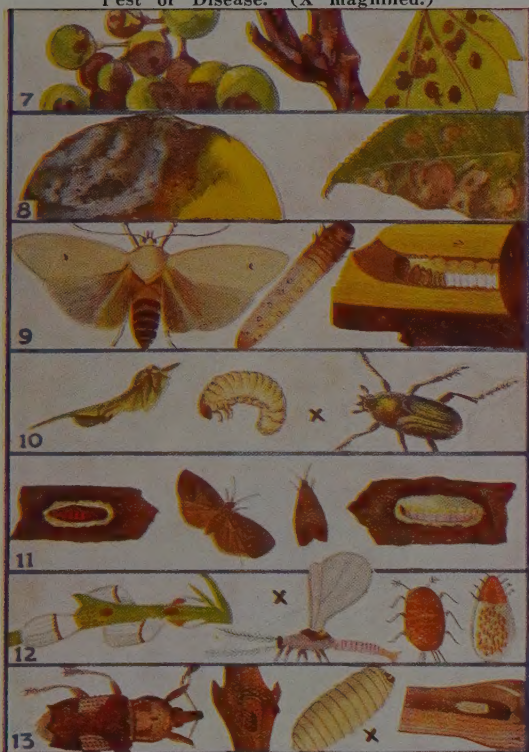
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INSECT PESTS AND PLANT DISEASES (Continued).

Pest or Disease. (X magnified.)

Description of Pests as Illustrated.



Black Spot of Vine.—The spores are ever-present. Under genial conditions for incubation and growth, the disease spreads rapidly, causing much loss. The disease seldom appears in dry seasons.

Brown Rot.—One of the most serious fungus diseases, the twigs, blossoms and fruit are attacked. (1) Blossom attack looks like frost injury. (2) The infected area on fruit spreads in concentric rings, which consist of millions of summer spores.

Cherry Borer.—The grub of the moth destroys Cherry, Apricot, Peach, Pear and Plum trees by boring into the branches, leaving a sawdust-like appearance on the outside of the hole.

Cherry Green Beetle.—Attacks the leaves of Cherry, Peach, Plum and Apple trees, Roses, and garden plants, etc., and, being in large swarms, will strip a tree in a very short time.

Codlin Moth.—The grubs, which hatch in eight or nine days from eggs laid at calyx of young fruit and on leaves, eat into the core; then they eat a tunnel to the outside of the fruit and lower themselves to the ground, and recommence the life-cycle. Several broods appear each season.

Cottony Cushion Scale.—A cushion-shaped scale insect, with a whitish-yellow, cottony down; attacks the leaves and stems.

Curculio of Vine.—A small boring weevil, reddish-brown, with light markings; very destructive. Will remain for twelve months or more in the wood.

Methods of Control of Insect Pests and Plant Diseases (illustrated above).

(7) **BLACK SPOT OF THE VINE** [*Anthrax-nose*] (*Manginia ampelina*).—Swab with Acid Iron Solution in early spring before vines show movement. Spray with Bordeaux or Burgundy Mixture (alkaline) when buds are bursting. Follow with Bordeaux or Burgundy neutral, giving applications according to weather conditions.

(8) **BROWN ROT** (*Sclerotinia americana*).—Attacks Peach, Plum and other stone fruit. Destroy mummified fruit. Spray Peaches, Plums, Lime-S., 1-9 (dormant); 1-35, "pink"; 1-80 when fruit starts color; 1-100 3 weeks before pinking; Apricots, Bordeaux, 6-4-40 early pink bud and late pink bud.

(9) **CHERRY BORER** (*Maroga unipunctata*).—Clear away the sawdust-like matter, inject Bisulphide of Carbon into tunnel; when using carbon, close mouth of tunnel immediately to keep fumes from escaping. Caterpillars can be destroyed by probing the tunnel.

(10) **CHERRY GREEN BEETLE** (*Diphucephala colaspoides*).—If no fruit on the tree, spray well with Arsenate of Lead when beetle appears. When fruit is ripening, spray with Hellebore powder, 1 oz. in 2 gallons of warm

water. This should be used perfectly fresh, as it is liable to deteriorate with age or exposure.

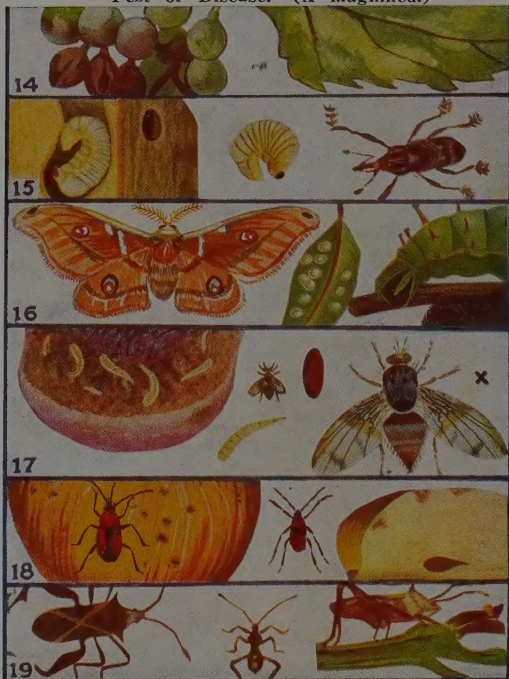
(11) **CODLIN MOTH** (*Cydia pomonella*).—Attacks Apple, Pear, Apricot, Quince, Loquat, Walnut, etc. Spray with Arsenate of Lead, first after petals fall and before calyx cup closes, and at intervals of 21-30 days until within three weeks of gathering fruit. Fungicides may be used with calyx spray. Excellent results have been secured by spraying with White Oils after first Arsenate of Lead spray. Destroy fallen infected fruit. If bandaging trees, examine and destroy larvae, at least every 10 days. Use chemical bandages.

(12) **COTTONY-CUSHION SCALE** (*Icerya purchasi*).—Attacks Orange, Lemon and other citrus trees, shrubs, hedge plants, etc., very severe on Pittosporum hedges. Spray with White Oil when the trees are making a decided growth about November. This is the time of the release of the young scale in most districts.

(13) **CURCULIO OF VINE** (*Orthorrhinus Kluggii*).—Inject Bisulphide of Carbon into tunnel and close mouth. Probe with wire. Deterrent.—Spray with Lime-Sulphur in winter.

INSECT PESTS AND PLANT DISEASES (Continued).

Pest or Disease. (X magnified.)



Description of Pests as Illustrated.

Downy Mildew of Vine.—This serious disease over-winters in the dead leaves infected during the preceding summer. Infection in the spring takes place through spores being splashed up by falling rain. These over-wintering spores (or oospores) retain vitality for over 12 months.

Elephant Beetle of Orange and Lemon.—A large brownish weevil with a long snout. This has become a serious pest to citrus trees. It bores into the trunks of the trees, causing them to die. It is also a pest of Elm and other street trees.

Emperor Gum Moth.—One of the largest Victorian moths. Grey in color with an eye-like spot on each wing, the larvae feed on Apple and Pear trees, also Eucalyptus and Pepper trees. Very destructive to Roses.

Fruit Fly.—The female punctures the fruit with its ovipositor, and deposits the eggs. Fruit is punctured in all stages, from green to ripe. The eggs hatch in two to five days in summer, and 10 to 15 in winter. In walking the wings are drooped. In summer the fly may complete its cycle from eggs to fly in 20 days.

Harlequin Fruit Bug.—These bugs, by making holes in the rind of the Apple with their rostrums (or sucking tubes), draw out the juice, causing the fruit to spot. They are also very destructive to garden plants, especially Dahlias, Tomatoes, etc.

Holy or Cross Bug.—This plant bug is a native insect and is very destructive to all kinds of Wattles (Acacias) and citrus trees. Like all plant bugs, this species sucks the sap with its rostrum or beak, causing the trees (twigs) to turn black and die down.

"VALLO" ORCHARD SPRAYS

ALL AUSTRALIAN MADE — COMPLY WITH STANDARD OF QUALITY SPECIFIED BY THE VARIOUS STATE DEPARTMENTS OF AGRICULTURE.

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(Paste and Powder)

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Certain death to all grubs that attack fruit trees. They are deadly in their purpose, and there is no necessity to remove or even inspect them.

Your Orchard is not adequately protected until fitted with "Vallo" Patent Codlin Moth Tree Bands.

NICOTINE SULPHATE.

40% Nicotine Guaranteed.

Invaluable to Orchardists, market gardeners, and home gardeners for the control of aphids, thrips, mites, red spider, white fly, lice and other soft-bodied sucking insects.

COPPER SULPHATE (BLUESTONE)

Commercial Crystals—Neige Crystals, Finely Powdered.

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ATOMISED SULPHUR POWDER

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Methods of Control of Insect Pests, as illustrated on opposite page.

(14) **DOWNY MILDEW OF THE VINE** (*Plasmopara viticola*).—Spray with alkaline Copper Soda when vine shoots have grown 8 to 10 leaves. Subsequent sprayings about every seven days if weather conducive to fungus development. The summer treatment for Black Spot and Downy Mildew is identical.

(15) **ELEPHANT BEETLE OF THE ORANGE AND LEMON** (*Orthorrhinus cylindrostris*).—Inject Bisulphide of Carbon into tunnels. (Same as for Cherry Borer Moth.)

(16) **EMPEROR GUM MOTH** (*Antherea eucalypti*).—Spray when observed with Arsenate of Lead.

(17) **FRUIT FLY** [Mediterranean or West Australian] (*Ceratitis capitata*).—Attacks Peach, Orange, Banana, Quince, Apple, Tomato, Grape, etc. Kerosene in shallow vessels attracts the fly.

Destroy all infected fruit. Destroy weeds, work ground well under trees; poultry and insectivorous birds destroy chrysalids. Use a spraying solution—1 gallon of fruit juice (boil refuse fruit for about one hour), 1 lb. Arsenate of Lead, 25 gallons of water. Spray on windward side of tree.

A Good Lure.—One tablespoonful Scrubbs' ammonia, one teaspoonful essence of vanilla, 1½ pints water. A dessertspoonful of black treacle may be added, but is not essential. "Clensel" and Harvey's Lure have been used with good results.

(18) **HARLEQUIN FRUIT BUG** (*Dindymus versicolor*).—Spray with Nicotine Solutions, Benzole or Benzine Emulsion, White Oil or Clensel (1 in 25), whenever observed. Keep orchards free of marsh mallows.

(19) **HOLY OR CROSS BUG** (*Mictis profana*).—When observed, spray with Benzole Emulsion, Nicotine Extracts, or Pine Spray. Shake trees over piece of blanket, and destroy all bugs that fall. Spray with Benzol Emulsion.

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ALL STATES.



"Every Inch
Australian"

**BLACK SPOT** (*Venturia inaequalis*).

1. "Green tip" stage of bud (enlarged). Spray with Bordeaux.
2. "Pink" stage. The important stage. Spray for Black Spot with Bordeaux or Lime-Sulphur
3. Spray again 10 to 14 days with Bordeaux or Lime-Sulphur, after stage (2). (Before calyx closes spray with Arsenate of Lead to kill Codlin grubs).
4. Effect of Black Spot on fruit and leaves.



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FRUIT GROWERS generally have come to depend on "Elephant" Brand Sprays. They find them absolutely reliable, efficient and of guaranteed quality.

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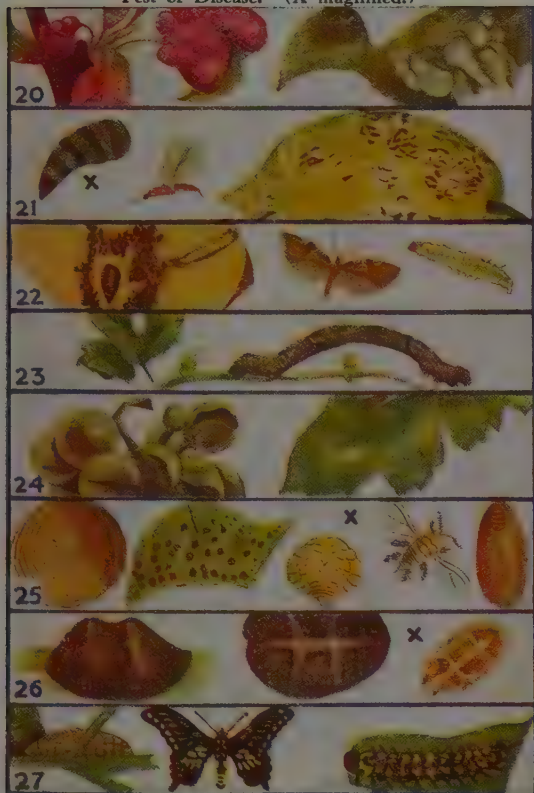
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INSECT PESTS AND PLANT DISEASES (Continued).

Pest or Disease. (X magnified.)

Description of Pests as Illustrated.



Leaf Curl and Dieback of Peach.—When affected with Leaf Curl (*Exoascus deformans*), the first-formed leaves become thickened, puckered and discolored, and soon fall away. The fungus seems to winter in the buds.

Lemon Leaf and Peel Scale.—A small, dark-colored, muscled, horned scale; the insect attacks leaves, bark and fruit of Lemon, Orange, Citron, Grapefruit, etc.

Light Brown Apple Moth.—These insects often attack late Apples, such as Yates, as late as March. Very destructive to Roses and garden plants.

Looper Caterpillar.—The caterpillar loops its body up when walking. Some caterpillars resemble dead twigs. They are native insects and are becoming a serious pest in many parts of Victoria.

Oidium (Powdery Mildew of Vine).—This fungus appears during the growing season under sultry conditions, such as during a damp spring or after thunderstorms in summer. Dense undergrowth of weeds also tends to create conditions favorable for Oidium development.

Oleander or Round White Scale.—A small, light, greyish-brown, sometimes whitish scale, which attacks the leaves and stem, and is a most difficult insect to destroy when trees are badly infested with it.

Olive or Black Scale.—These destructive scales cause sooty fungus to develop on the leaves, making trees sickly. The scales are light brown when young with an H-like marking on back of scale.

Orange Butterfly.—In the warmer parts of Victoria these insects usually appear early in November. The yellow and black spiny caterpillars will attack Grapefruit if Orange or Lemon trees are not available; they attack the leaves, flowers and fruits of citrus.

Methods of Control of Insect Pests and Plant Diseases (illustrated above).

(20) **LEAF CURL AND DIEBACK OF PEACH.**—By spraying in the late dormant period, or when the earliest buds are showing the slightest trace of pink, Leaf Curl can be prevented. Use Bordeaux Mixture (6-4-40), or Burgundy Mixture (6-8-40). Finish spraying by the "early pink" stage.

(21) **LEMON LEAF AND PEEL SCALE** (*Mytilapsis citricola*).—Thin out all dead or diseased wood. Spray with White Oil, 1-40, when trees are making decided growth. Make solution soapy by adding 4 ozs. of a good hard soap to each 40 gallons. Fumigate with Hydrocyanic Acid Gas.

(22) **LIGHT BROWN APPLE MOTH** (*Tortrix ashwarthana*).—This pest is very common in home gardens, attacking Roses, Dahlias, Tomatoes, etc. The caterpillar is very lively, and quickly escapes if disturbed. Spray with Arsenate of Lead, same as for Codlin Moth, No. 11.

(23) **"LOOPERS" OR LOOPER CATERPILLARS** (*Phrissogonus* sp.).—These attack fruit trees, particularly Apples, Pears and Cherries; and garden plants in the spring. Spray with Arsenate of Lead.

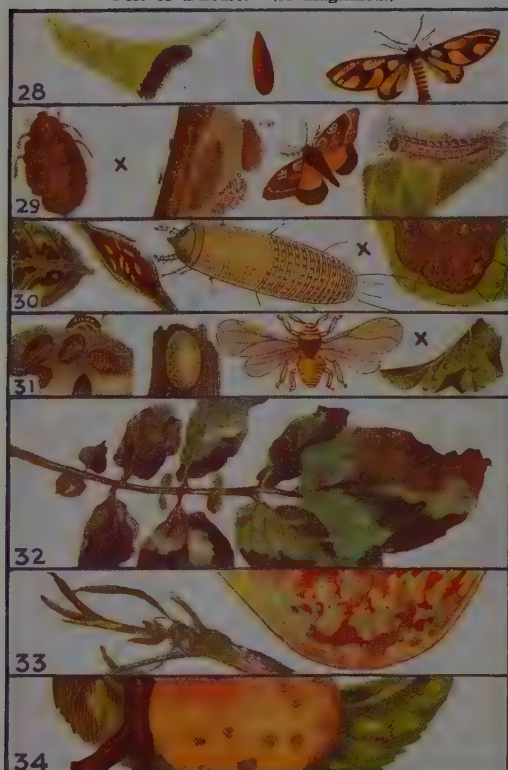
(24) **OIDIUM [Powdery Mildew of the Vine] (*Oidium Tuckerii*)**.—Dust the vines with Flowers of Sulphur; first application when new shoots are six inches long; also dust with Sulphur just before blooming and after the fruit has formed. Keep vineyard clear of weeds.

(25) **OLEANDER OR ROUND WHITE SCALE** (*Aspidiotus hederæ*).—Attack Orange and Lemon trees, also Oleanders and garden shrubs, palms, ferns, etc. Spray well with White Oil or Nicotine solution when young are hatching (in summer). Starch spray is also recommended. On Palms, Dracaenas, Ferns, etc., use the Starch spray.

(26) **OLIVE OR BLACK SCALE** (*Saissetia oleæ*).—Attacks citrus, Apple, Apricot, vine, Olive, Pear, and Plum trees, also garden shrubs. Spray between November and March with White Oils. When young scale are moving is the favored time for their destruction.

(27) **ORANGE BUTTERFLY** (*Papilio anactus*).—Spray with Arsenate of Lead.

Pest or Disease. (X magnified.)



Description of Pests as Illustrated.

Orange Moth.—The larvae of this moth feed on the leaves and young shoots, and is very destructive. The caterpillars of this moth destroy young flowers, buds and young shoots or Orange and Lemon, as well as the foliage.

Painted Apple Moth.—The caterpillars are covered with dark grey tufts of hairs on back near tail. They do great damage by eating the epidermis or surface of the leaves, also young shoots. These moths often appear when the flowers of Apples, Pears, Quinces, etc., are commencing to show. It may therefore be necessary to spray early.

Pear Phytoptus or Pear Leaf Blister Mite.—These mites, by sucking away the juice of the leaves, cause them to turn brown and nearly black. Also attacks fruit.

Phylloxera.—Attacks leaves and roots, growth becomes stunted, and leaves turn yellow.

Potato Blight (Irish).—Attacks Potatoes, Tomatoes, etc. The first indication seen on the leaf is a slight reduction in the intensity of the coloring matter, followed by the appearance of the brownish blotches at the edge of the leaf. In humid weather they spread with immense rapidity. The disease travels down the haulms, and the plant may within a few hours become a blackish mass, emitting an evil odor. Wet seasons favor the disease.

Powdery Mildew.—A serious disease, which attacks leaves, shoots, blossom-buds and fruits of Apples and Pears. Leaves and buds become covered with glistening white masses; fruit is disfigured and small.

Prune Rust.—Attacks Plum trees. Golden yellow pustules on young wood form cracks; sometimes twigs die. Hard scabs form on fruit—useless for canning. Leaf injury means poor crop next season.

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"LION" BRAND SPRAYS

ARSENATE OF LEAD (PASTE)
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LIME SULPHUR
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Of course, it pays us to produce the highest quality Fruit Sprays—We maintain a standard that will build up our business and win the confidence and goodwill of our customers.

On the other hand, it will pay you handsomely to use "Lion" brand Sprays to ensure the maximum protection from the ravages of insect pests and fungus diseases.

The wisdom of your choice will be reflected in your profits at the end of the season.

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Methods of Control of Insect Pests, as illustrated on opposite page.

(28) **ORANGE MOTH** (*Conogethes punctiferalis*).—Spray with Arsenate of Lead when observed.

(29) **PAINTED APPLE MOTH** (*Teia anartoides*).—Attacks fruit trees, also garden plants and shrubs. Spray with Arsenate of Lead, same as for Codlin Moth (see No. 11).

(30) **PEAR PHYTOPTUS OR PEAR-LEAF BLISTER MITE** (*Phytoptus pyri*).—Spray in spring, when buds commence to swell, Red Oil, 1-25, or Lime-Sulphur: the latter assists in checking Black Spot.

(31) **PHYLLOXERA** (*Phylloxera vastatrix*).—Plant Phylloxera resistant vines.

(32) **POTATO BLIGHT** [Irish] (*Phytophthora infestans*).—Spray with Bordeaux Mixture, 8-10-40. Commence spraying when the plants are from 4in. to 6in. high, and continue to spray every 10 days or two weeks, making in all five or seven sprayings. Use at least 80 lbs. pressure to the square inch, and the three-nozzle arrangement, so that the spray will be thrown each side as well as on top. For Potatoes, use clean seed dipped in Formalin.

(33) **POWDERY MILDEW** (*Poposphaera leucomotricha*).—In winter, prune off and burn infected shoots. Spray with Lime-Sulphur, 1-30, between open cluster and pink stage; Precipitated Sulphur, 10-100, at petal fall, and again (with the last-named spray) early in January. If disease is troublesome, middle of February.

(34) **PRUNE RUST** (*Puccinia pruni*).—Spray European Plums, Bordeaux, 6-4-40, just before the buds start to move.

DUSTING.

The method of dusting trees with insecticides and fungicides instead of, and in addition to, spraying, has met with favor. Points claimed in favor of dusting are its efficacy, ease of application, and consequent saving of labor; the dual application of powdered insecticides and fungicides in one operation.

In vegetable and flower culture dusting is quite an accepted practice.

Codlin Moth Tree Bands.

The bandaging of trees to trap codlin moth grubs has long been adopted as a method to assist in the control of this pest; if bandages are examined regularly and the grubs destroyed, the practice has much to commend it. On the other hand, if bandages are not regularly attended to they can become breeding places for the perpetuation of the pests, and thus are more of a danger than of assistance.

The recently devised method of using chemically treated bands, which kill the harboring grubs, is a development of great importance to the fruit industry.

The danger of the bands being a harbor for the pests is removed. The grubs crawl under these "protective" bands to their doom. Thus the use of these bands has been adopted as a valuable aid in the control of the codlin moth.

The Victorian Government Entomologist, Mr. R. T. M. Pescott, M.Agr.Sc., wrote as follows, after tests, at Harcourt, Victoria:

"In an experimental block, we had ten chemically treated bandages. In these were 287 codlin moth larvae, all dead. It is felt that chemically treated bandages will prove of very great value to orchardists in codlin moth control."

Last season, tests were made by Mr. Rodney Fowler, manager, Blackwood Experimental Orchard, Blackwood, Sth. Australia, with 100 feet of chemically treated bandaging on 50 average-sized trees. After giving details of the grubs caught, Mr. Fowler states that by catching the grubs in these bandages the effect would be cumulative, and should materially assist in reducing the codlin moth population in the orchard. The chemically treated bands will not do away with the necessity for spray measures, but, as they will automatically kill practically all of the codlin moth larvae that remain in contact with them, they should materially help in the control of codlin moth in the orchard, particularly where the practice of applying and examining regularly the usual bag bandage is not carried out.

It was also noted that bands taken from trees affected with woolly aphis contained thousands of dead aphides, evidently caught while migrating to the roots for the winter.

From the results, therefore, of one season's tests, it would seem that the chemical bands have given fairly good results, and the experiment is worth further trial.

Appreciations from growers are numerous. A Swan Hill grower writes: "The codlin moth bands were successful in catching and killing numerous grubs: the results far exceeded my anticipations."

A Red Hill grower states the codlin moth bands were a great success. They were particularly good on old trees that had a lot of loose bark, where grubs usually find a lodging place.

A Few Hints.

Codlin moth bandages should be applied from mid spring onwards, and should not be removed till the following July.

Before applying the bands, scrape all loose bark from the trunk of the tree. In applying the band, cut to the required length to suit the circumference of the tree, with an overlap of one inch, insert the staple through the corrugated side in a parallel position, then wrap around the tree with the corrugations lying next to it. Press the overlap section on the projecting points of the staple, bending the ends inwards, which will then hold the band securely in position.



The Cleanest Orchard in the district!

It has been found in fruit-growing districts throughout Australia that wherever the NEPTUNE Spraying materials are used the orchardist has the reputation for possessing the healthiest trees, and producing the cleanest fruit.

Why not use only Neptune and enhance YOUR reputation?

Neptune Spraying Materials include:

Neptune Prepared Spraying Oils "A" and "C."

Neptune Prepared Crude Spray Oil.

Neptune White Spraying Oil.

Neptune Lime Sulphur Solution.

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Berger's Arsenate of Lead (Paste or Powder).

"Challenge" Red Powder.

Genuine Black Leaf 40.

Write for a Free Booklet for full details of

NEPTUNE

SPRAYING MATERIALS

NEPTUNE OIL COMPANY LIMITED : ALL STATES

Methods of Control of Insect Pests, as illustrated on opposite page.

(35) **RED MITES, BRYOBIA, Etc. (*Bryobia pratensis*).**—They attack fruit trees, also garden plants, flowers, vegetables, etc. Spray with Lime-Sulphur or Red Oil, 1-20, when buds commence to swell. If mites are present on leaves in summer, spray with White Oils or Nicotine Solutions.

(36) **RED SCALE OF ORANGE (*Chrysomphalus auranti*).**—Spray same as for Lemon Leaf and Peel Scale. When young are hatching in summer Tobacco Sprays could be used. Fumigate.

(37) **RED SPIDER (*Tetranychus telarius*).**—Same as for Red Mites. (See No. 35.) For Red Spider on beans spray as above or dust with finely powdered sulphur.

(38) **ROOT BORER (*Leptops squalida*).**—Attacks Apples, Pears, vines, etc. Place a 3½ in. zinc band round tree trunk 18 in. from ground. Destroy all beetles observed. Keep orchards clean in the spring, as the insects lay their eggs on weeds, leaves, or suckers. Spray with Arsenate of Lead. Hymenopterous (wasp) parasites are valuable. Jar the trees over a blanket; gather and destroy the beetles.

(39) **ROOT ROT (*Armillaria mellea*).**—Remove soil. Clean all traces of disease from roots, paint with Bordeaux Paste (1 lb. sulphate of copper and 1 lb. fresh slaked lime to 1 gallon water). Apply from 1 to 2 lbs. Sulphate of Iron to soil. Expose roots to the weather for a few weeks. Improve drainage. Remove all native tree roots before planting fruit trees. Research work in the study of this disease is needed.

(40) **RUTHERGLEN BUG (*Nysius vinitor*).**—Spray with Benzole or Benzene Emulsion, Nicotine Solutions, when the bugs appear. Apply Pyrethrum or Nicotine Dust. Keep down weeds. Smudge fires will drive them away from orchards. As a deterrent, spray with Benzole Emulsion.

Mealy Bug (*Pseudococcus longispinus*).—Small destructive insects, light yellow to grey, covered with powdery substance. Spray with tobacco preparations, or benzole emulsion.

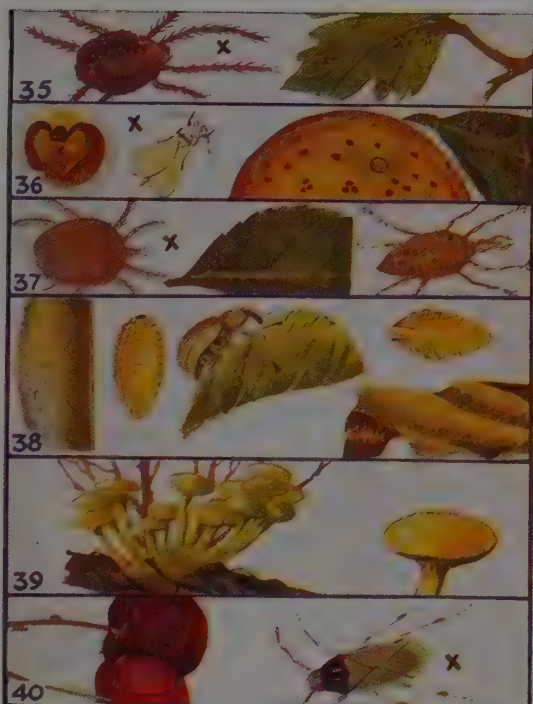
Pear Root Aphis (*Eriosoma pyricola*).—Closely allied to woolly aphis; the former works entirely underground. Scatter paradichlorobenzene (P.D.B.) on surface of soil and dig in, or place in hole 6 in. deep excavated around tree. Use 3 to 10 oz. P.D.B., according to size of tree. Dip young trees before planting in tobacco water or red oil solution.

The Dicky Rice Weevil attacks citrus trees. Spray with arsenate of lead, 1-20, as soon as observed (generally early in November),

INSECT PESTS AND PLANT DISEASES (Continued).

Pest or Disease. (X magnified.)

Description of Pests as Illustrated.



Red Mites, Bryobia; Etc.—The young mites are red, becoming brownish when fully grown. This species is larger than the common so-called "Red Spider." Eggs red, globular, these are often deposited on young fruit spurs and garden foliage.

Red Scale of Orange.—A small reddish brown scale insect; attacks fruit, leaves and branches, also Roses and garden shrubs; spreads very quickly.

Red Spider.—The sap is sucked by numbers of these insects from the leaves, causing them to turn yellow. It is difficult for the amateur to locate the pest until a certain amount of damage is done.

Root Borer.—The grub attacks trees by tunnelling along the roots, and the beetle by eating the leaves. The beetle climbs the tree, fastens the leaves together with a gluey substance, and then lays her eggs. When hatched the young grubs drop to the ground and feed on the roots. The pest usually appears on the leaves for feeding in the spring.

Root Rot (Armillaria Mellea).—A destructive root fungus, which attacks all fruit trees and many garden plants.

Rutherglen Bug.—These plant bugs insert their beaks or rostrums into the fruit and extract the juice, causing the fruit to wither, become dry, and perfectly useless; they also attack flowers and vegetables, sucking the sap and causing the plants to wither. Usually appear in the summer.



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AUSTRALIA is justifiably proud of the quality of the fruit it produces, for it is equal to that grown in any part of the world. Climatic conditions in Australia are, generally speaking, favourable to the growth of the finest fruits but, unfortunately, the same conditions also favour the spread of insect pests, particularly that terrible enemy of the orchardist, the Codlin Moth. It is only the best fruit that shows the grower a profitable return, and only the best Arsenate of Lead will give the maximum protection against the ravages of the Codlin Moth in the orchard.

The profits of many an orchardist have been sadly reduced through using inferior quality sprays that do not give the maximum protection to his crop. The wise grower uses "Aero" brand Arsenate of Lead, and is therefore assured of protection for his orchard. The result is sound, codlin-free fruit that commands the highest returns in the market.

Bickford's "Aero" brand Arsenate of Lead has, for many years, proved the orchardists' surest safeguard against damage from Codlin Moth. Leading orchardists all over the Commonwealth are now using this superlative quality Arsenate of Lead with wonderful success, and are unanimous in their verdict that it is the finest Arsenate of Lead on the market.

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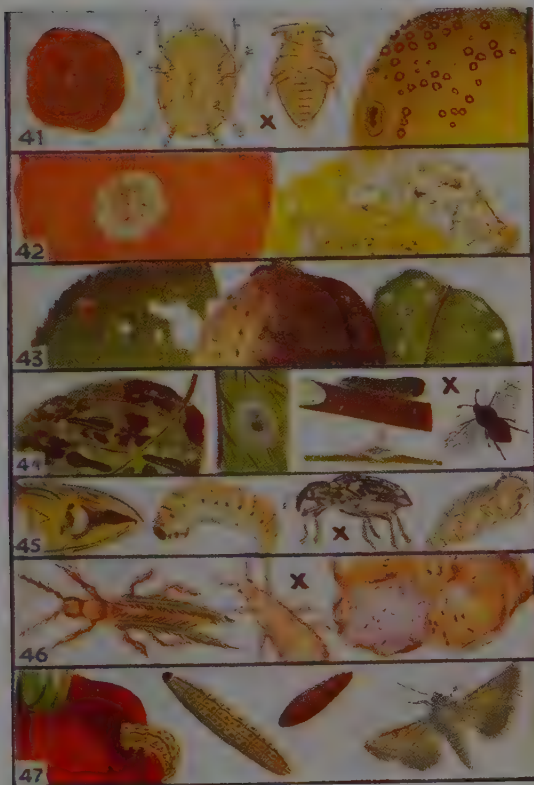
By every Test Bickford's "AERO" Brand is Best



INSECT PESTS AND PLANT DISEASES (Continued).

Pest or Disease. (X magnified.)

Description of Pests as Illustrated.



San Jose Scale.—Attacks fruit trees—Pear, Apple, Cherry, Plum, Apricot, etc., also Roses, shrubs and hedge plants. A small scale insect of light orange color; attacks trunk, limbs, foliage and fruit. Is very destructive. When Apples and Pears (fruit) are attacked, light red rings appear on the fruit around the scales.

Scab of Orange and Lemons.—Lemon Scurf, dingy white scurfy patches. Grey scab of Orange, the patches are flat, almost round, and break up into minute flakes. Greyish-brown scab of the Lemon occurs on both ripe and green Lemons. False Melanose is another form of scab.

Shot Hole.—Attacks blossom, leaves, twigs and sometimes fruit of Apricot, Cherry, Plum, etc. Blossom infection looks like frost injury. Leaf infection occurs very early, often reducing leaves to skeletons. Gum often exudes from ruptured bark. Scabbiness appears on Apricot fruit.

Slug of Pear and Cherry.—The larvae attack the leaves, doing serious mischief by devouring the skin of the upper side of the leaf. The underside is left untouched, and turns to a deep brown color. They attack the tree mainly in late spring, when the foliage is young.

Strawberry Beetle.—In November and December these insects do most damage; the beetle attacks the leaves and flowers, and the larvae bores into the plant.

Thrips.—One of the worst insect pests. All kinds of fruit, flowers and vegetables, especially Onions, are attacked.

Tomato Moth.—The eggs of this moth are deposited on leaves and stem. The young larvae crawl up the stem and eat their way at once into the flesh, which is destroyed. There is scarcely any limit to the number of plants this pest will attack, cereals, maize, vines, garden plants, etc.

Methods of Control of Insect Pests and Plant Diseases (illustrated above).

(41) **SAN JOSE SCALE** (*Aspidiotus perniciosus*).—Burn all prunings promptly. Spray in late winter with Red Oil, 1-20 or Lime-Sulphur, 1-10. In summer, when scales are moving, spray with White Oils or Nicotine.

(42) **SCAB OF ORANGE AND LEMON.**—As this disease attacks new growth, spray with Bordeaux (3-3-50), to which has been added 1 per cent. of Red Oil, before the new growth begins.

(43) **SHOT HOLE** (*Coryneum Beijerinckii*).—Spray Bordeaux, 6-4-40, before leaves fall in autumn; 6-4-40 at "pink" stage. Use lime casein spreader with the Bordeaux mixture.

(44) **SLUG OF PEAR AND CHERRY** (*Caliroa cerasi*).—Cherry, Peach, Quince, Plum and other trees are attacked. Spray with Arsenate of Lead. The first spray for Codlin usually kills the Pear Slug. Spray unbearing trees or Hawthorn hedges if necessary. Dust with lime, powdered Lead Arsenate, Sulphur, ashes, or sand.

(45) **STRAWBERRY BEETLE** (*Rhinaria per-dix*).—Spray with Arsenate of Lead before fruit is ripening. As a deterrent, spray with Benzole Emulsion.

(46) **THRIPS.**—When not in plague numbers, thrips do not seriously affect fruit crops. Scientific investigations prove that plague infestations as well as freedom from the pest, can be forecast from the numbers of insects present in the autumn and early spring. Pyrethrum and derris dusts kill thrips and act as repellants for two days with each application. See "Fruit World," December, 1934.

(47) **TOMATO MOTH** (*Heliothis armigera*).—Use poisoned baits, bran and arsenic, also Arsenate of Calcium. Spray with Arsenate of Lead or dust with powdered Arsenate of Lead. Keep soil around plants well forked.

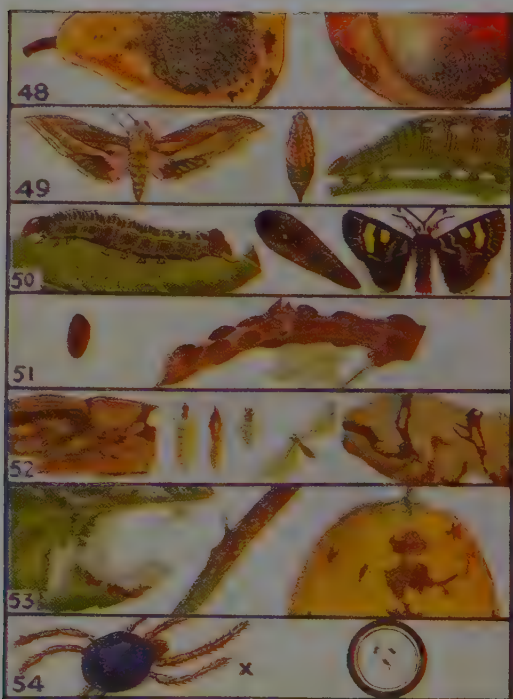
FUMIGATION.

Fumigation with Hydrocyanic Acid Gas kills red scale of citrus trees and various other scales and pests. In Victoria fumigation is compulsory. Tents are placed over trees, calcium cyanide dust, 1 oz. per 100 cub. feet, is forced in by means of a hose and blower. On being released to the air hydrocyanic acid gas is formed. This has largely superseded the "pot" method of mixing cyanide, sulphuric acid and water.

Fumigation is done (on still nights) from late December to early June; the temperature should not be below 50 deg., and humidity should not exceed 80 degrees.

INSECT PESTS AND PLANT DISEASES (Continued).

Pest or Disease. (X magnified.)

**Description of Pests as Illustrated.**

Transit Rot.—Attacks fruits only through skin injury. It appears as a cottony mould, at first white, but quickly changing to black. The fungus produces a rot which at first is brown and quite firm; then the cells rapidly break down and the fruit becomes a watery mass.

Vine Hawk Moth (Silver Striped).—The caterpillar of this moth strips the vines of their leaves in a very short time, even quicker than the caterpillar of the Vine Moth.

Vine Moth.—The caterpillar, or larvae, of this moth attacks the leaves and young Grapes, also Virginia Creeper, and will very quickly denude the vines and creepers of their foliage.

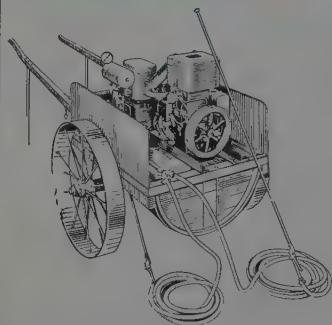
Vine Scale.—One of the largest scales infesting plants. Attacks vines, Jap. Plums, etc. This scale has become a pest in flower gardens. Many kinds of creeping plants, viz.:—Tacsonia, Abutilon, Mandevillea, Cobaea, etc., being attacked.

White Ants.—This destructive pest attacks timber trees, vines, Apricot, Orange and Peach trees, also furniture, etc.; is a very serious enemy.

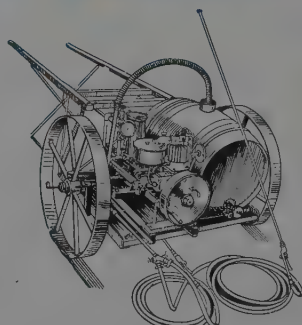
Wither Tip of Orange and Lemon.—Often called "Dieback," as twigs die from the top downwards. ("Dieback" of Apple trees may be associated with this disease.) On the undersurface of the leaf whitish grey blisters arise. The leaf withers at the tip and is gradually destroyed; blotches appear on stem.

Pea Mite.—A serious pest. The body of this mite is dull blue. They have rather long red legs. They run very rapidly when disturbed, and soon get out of sight, hiding in crevices or under lumps of earth.

ORCHARD SPRAY EQUIPMENT



Rosebery Fig. 472—Standard 2-Wheel Outfit, has a 100-gal. Vat, a Special High Pressure Spray Pump, and 2½ h.p. Engine.



Rosebery Fig 602—Outfit with 60-Gal. Barrel and Combined Engine and Spray Pump Unit.



Rosebery Fig. 502—A Barrel Spray Pump for Hand Operation.



Rosebery Fig. 513—High Pressure Hand Spray Pump.

DALGETY'S are Agents for N.S. Wales for ROSEBERY PRODUCTS

WRITE AT ONCE FOR COPY OF BULLETIN S.C.1, WHICH GIVES FULL DESCRIPTION OF THE VARIOUS ROSEBERY SPRAY CARTS AND SPRAY PUMPS . . . POSTED GRATIS.

WE SPECIALIZE IN PUMPING OUTFITS OF EVERY DESCRIPTION

WRITE US FOR PARTICULARS OF THE DRASTIC REDUCTION IN PRICE OF THE MARVELLOUS "SHAVE" REVERSIBLE DISC PLOUGH!

Offices and Showrooms: MILLER'S POINT, SYDNEY.

Methods of Control of Insect Pests, as illustrated on opposite page.

(48) **TRANSIT ROT** (*Rhizopus nigricans* Ehr., *Rhizopus arrhizus* Fisch).—Handle fruit carefully, preventing skin injury. Sterilise cases in boiling water. Spray shed interiors and all wood-work with 1 lb. bluestone to 5 gallons water. After picking and packing, pre-cool fruit immediately for two days at 35 deg. F., and transport to market in iced insulated trucks or louvre trucks.

(49) **VINE HAWK MOTH, SILVER STRIPED** (*Chærocampa celerio*).—Spray with Arsenate of Lead, whenever observed.

(50) **VINE MOTH** (*Phalænoïdes glycine*).—Spray with Arsenate of Lead, whenever observed. Keep soil at the foot of the vines worked up to destroy chrysalids in soil.

(51) **VINE SCALE** (*Eulecanium berberidis*).—Sprays same as for Olive or Black Scale. Spray in summer when young are observed with Tobacco extract.

(52) **WHITE ANT OR TERMITE** (*Termes lacteus*).—Apply Manurial Insecticides or Kainit to roots. Inject Carbon Bisulphide if nests located.

(53) **WITHER-TIP OF ORANGE & LEMON** (*Phoma omnivora*).—Prune out all diseased

wood and spray with Bordeaux Mixture (6-4-40) or Copper Soda (6-9-40).

(54) **PEA MITE** (*Penthaleus bicolor*).—Attacks Peas, Onions, Potatoes, Beans, Beet, etc., also flowers. When mites appear, plough deeply and destroy all weeds, particularly Capeweed as the mites breed on these. They will not live for any length of time on clean cultivation, but fairly quickly migrate across it from pasture paddocks, dirty headlands, etc. Any plot freed from mites by cultivation or other treatment may be kept free by placing a trail of Creosote, or a mixture of Kerosene and Phenyle, about four inches wide, right across the plot. The mites will not be able to cross this for a few weeks.

Take 1 part of Carbolic Powder (15 per cent.), 3 parts Lime, Super. of Gypsum, and broadcast over the plants, and work into soil at the rate of 2 cwt. per acre.

Tobacco Dust (Pestend) and Lime in equal quantities have been used in a similar way with some success by market gardeners. Manurial Insecticide used at the rate of 1½ to 2 cwt. to the acre has also been fairly effective in some parts.

Spray with Nicotine solutions.

Dust with Nictar dust.



Complete details on request to
ATLANTIC UNION OIL CO. LTD., SYDNEY, MELBOURNE, WELLINGTON, ETC.

Cooper Sprays

Are Definitely Superior

COOPER'S

● **ARSINETTE** Specially prepared Arsenate of Lead Powder, unsurpassed for fineness of particles. Used for the control of all chewing grubs and insects.

Packed in $1\frac{1}{2}$ cwt., 1 cwt., 28 lb. and 4 lb. and 1 lb. units.

COOPER'S

● **ALBOLEUM** Emulsified White Oil. Safe to use on all classes of fruit trees and shrubs at any season of the year. Used for the control of scale pests and as a general tonic. Controls Red Spider and Aphis.

Packed in 40 gall., 5 gall., 2 gall. and 1 gall. containers.

COOPER'S

● **BORDINETTE** Ready prepared Copper Fungicide. Mixes immediately with cold water and is then ready for use. For the control of all Fungous Diseases of plants for which a Copper spray is advocated. Dilution 1 lb. to 10 galls.

Packed in 56 lb., 28 lb., 4 lb. and 8 oz. containers.

COOPER'S

● **COLLOIDAL SULPHUR** Pure sulphur in semi-paste form. The finest form of sulphur ever produced, the particle size being less than one 25,000th part of an inch. Safe to use at all times. Controls Mildews, Spots, Brown Rot of Stone Fruit and other diseases for which sulphur in any form is used.

Packed in 56 lb., 28 lb. kegs and 7 lb. jars. Dilution 2 lb.-100 galls.

COOPER'S

● **OVICIDE** The original Tar Distillate Wash. Used all over Australia for the control of aphis and other overwintering pests. For dormant spraying only.

Packed in 40 gall., 5 gall., 2 gall. and 1 gallon containers. Dilution 1 gall. to 35 gallons water.

Also **KATAKILLA**: non-poisonous contact spray; **NICOTINE**: 40 per cent.; **WEEDICIDE**: weed and scrub killer; **APPERITE**: soil fumigant; **WORMKILLER**: for lawns, etc.; **SOIL STERILISER**, Etc., Etc.

William Cooper & Nephews (Australia) Limited
SYDNEY

Victorian Distributor: F. R. MELLOR, 440 Elizabeth Street, Melbourne, C.1.

Thrips.

Thrips outbreaks, which occur in the spring, usually follow seasons in which autumn and winter rainfalls are above normal. The activities of the insects are largely regulated by weather conditions.

The damage caused by thrips is brought about as a result of feeding in great numbers in blossoms. This causes the petals, stamens and pistils to wither and die; consequently, no fruit is set. Eggs are deposited just below the skin in every part of the blossom, mostly in the stems and sepals, but also in the stamens, pistils and calyx cups, and occasionally even in the petals. As many as 150 eggs have been found in a single Pear blossom stem. They are also embedded in leaves adjacent to flower clusters, especially late in the season when the blossoms are falling.

The nymphs, after hatching, cluster inside the calyx cup, and feed mainly on the styles and filaments of the stamens. They also feed on tender leaves, and it has been found that they can complete their development on such leaves.

The immature thrips, on emergence from the eggs, resemble the adult in form, save for the fact that they lack wings—these are later developed. The feeding habits are also similar.

There are, however, two resting stages between the nymphal and adult stages. These are known as the prepupal and pupal instars. While in these stages, the thrips take no food, and are to a great extent inactive.

Control is difficult, but the recent researches of the Thrips Investigation League reveal that Pyrethrum and derris dusts have a toxic and repellant action, keeping the blossoms clean for at least two days after each application. The investigations are being continued.

THRIPS, AS ILLUSTRATED HEREWITH.

1.—Rose bloom and buds deformed by thrips. Natural size. 2.—Apple bloom and buds deformed by thrips. Natural size. 3.—Perfect insect. Highly magnified. 4.—Thrips on rose. Natural size.



Illustration by courtesy Department of Agriculture, Victoria; and blocks, Shell Co.

Trap the Fly . . . Scare the Bird

Fruit flies and birds, the orchardist's two most deadly pests, can now be ridded by the use of modern and efficient means of protection.

GLASS FRUIT FLY TRAPS

with the new improved patented base.

Advocated by the Department of Agriculture. Following are the two recipes recommended by the Department:—

- (1) Essence of vanilla, $\frac{1}{2}$ fluid ounce; ammonia, $\frac{1}{2}$ fluid ounce; water, 26 fluid ounces (Jarvis formula).
- (2) Apple or pear syrup. This is made by boiling 5 lb. of inferior fruit in 1 gallon of water until pulpy. Then strain and add enough water to make up the amount lost by evaporation.

The bait should be renewed every six days, or as soon as it becomes unattractive to the flies.

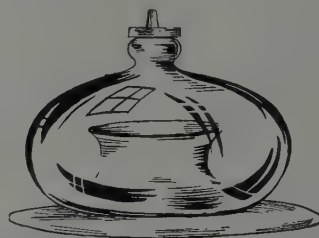


Black Cat Glitterers

The Black Cat Glitterer dangling from a tree, to scare the birds from the fruit, or dangling above seedling beds to keep the birds from eating up all the seed, in either place performs the most philanthropic work the seedling culturist or orchardist could imagine.

Watch the scared look on the birds as they fly past the trees or the protected crop of the wise grower who equips himself with this dangling Black Cat Glitterer.

PRODUCTS of CROWN CRYSTAL GLASS Co. Ltd.
SYDNEY.



"REGA" High-Class Spraying Equipment

The World's Best

A Complete Range of ATOMISERS, BUCKET PUMPS, KNAPSACKS, BARREL SPRAYERS, DUSTERS, etc.

Obtainable throughout the Commonwealth

Ask Your Local Dealer for Catalogues

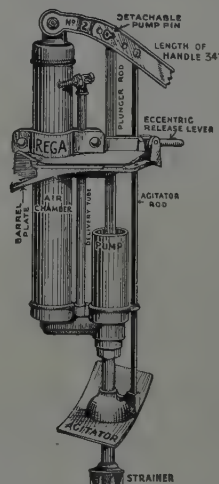


"REGA" Knapsack Dust Sprayer, force-fed; 600 cubic inch bellows capacity. Capacity 15 lbs.; weight 18 pounds.



MOLE'S PATENT

"REGA" Knapsack Sprayer. Capacity 4 gals.; weight (empty) 16 lbs. Special features include pumping system, whereby surplus liquid above plunger is returned to the Container.



"REGA" No. 2 Improved Barrel Sprayer. Soundly constructed, easily operated.

CLASSIFIED INDEX OF ORCHARD PESTS AND DISEASES.

See Colored Illustrations on Foregoing Pages.

Apple—

- 1.—Woolly aphid.
- 2.—Apple mussel scale.
- 5.—Black spot of Apple.
- 11.—Codlin moth.
- 22.—Light brown Apple moth.
- 23.—Loopers.
- 29.—Painted Apple moth.
- 33.—Powdery mildew.
- 35.—Red mites (Bryobia).
- 37.—Red spider.
- 38.—Apple root borer.
- 39.—Armillarea.
- 41.—San Jose scale.
- 46.—Thrips.

Pears—

- 5.—Black spot of Pears.
- Pear root aphid.
- 11.—Codlin moth.
- 22.—Loopers.
- 30.—Pear phytophthora.
- 40.—Pear slug.

Vines—

- 7.—Black spot of vines.
- 13.—Curculio of the vine.
- 14.—Downy mildew of the vine.
- 24.—Oidium of the vine.
- 31.—Phylloxera.
- 49.—Vine hawk moth.
- 50.—Vine moth.
- 51.—Vine scale.

Citrus—

- 6.—Black spot of Citrus.
- 12.—Cottony cushion scale.
- 15.—Elephant beetle of Orange and Lemon.
- 17.—Fruit fly.
- 21.—Lemon leaf peel scale.
- 25.—Oleander scale.
- 26.—Olive or black scale.
- 27.—Orange butterfly.
- 28.—Orange moth.
- 36.—Red scale.
- .—Dicky rice weevil.
- 39.—Armillarea.
- 42.—Scab of Orange and Lemon.
- 53.—Wither tip of Citrus.
- .—Holy bug.

Stone Fruits—

- 2.—Aphis of the Peach.
- 4.—Apricot beetle.
- 8.—Brown rot.
- 9.—Cherry borer.
- 10.—Cherry green beetle.
- 20.—Peach leaf curl.
- 34.—Prune rust.
- 39.—Armillarea.
- 40.—Rutherglen bug.
- 41.—San Jose scale.
- 43.—Shot hole.
- 48.—Transit rot.

Vegetables.

- 18.—Harlequin bug.
- 32.—Irish blight of the Potato—Potato blight.
- 37.—Red spider.

- 46.—Thrips.
- 47.—Tomato moth.
- 54.—Pea mite.

Miscellaneous—

- 45.—Strawberry beetle.
- 16.—Emperor gum moth.
- 52.—White Ants.

TRAPPING FRUIT FLY.

The following is a summary of trapping or luring tests carried out recently by Messrs. L. J. Newman and B. A. O'Connor, Entomologists of the Dept. of Agriculture, W.A.

Glensel at a strength of 1 part to 30 parts of water is recommended as a luring agent. It attracts both sexes of the fruit fly. Renew lure every seven days in summer or whenever traps go dry. Renew in cool weather every 10 to 12 days.

Glass jars as traps are advised, especially during the months of July to December.

The most effective time to lure is between July and December. One female fly captured during this period is worth thousands caught during the peak of the season.

If fruit is present on trees, hang traps in proximity to same.

Hang traps in sunny aspect from April to October. During summer, hang in shady position.

The minimum number of traps per tree is two. As many more may be used as the operator can attend to.

The alternative formula is made of the following ingredients:—Pollard, 8 oz.; powdered borax, 8 oz.; arsenate of soda, $\frac{1}{2}$ oz.; water to make 1 gallon of liquid.

Method of Making.—Mix the ingredients together thoroughly and allow to steep for 14 to 16 hours. At the end of this period again shake well together and allow to settle.

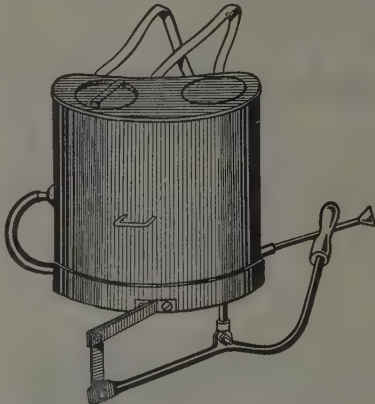
The heavy matter will fall to the bottom of vessel, leaving a fairly clear amber-colored liquid. Draw or syphon off the liquid, discarding the residue, which should be buried, and make up to 1 gallon by the addition of water. By using only the clear fluid, the clogging of the traps is prevented. This preparation, if kept corked, will keep for a considerable period. The lure should be renewed every seven to ten days in summer and every 12 to 14 days in winter.

SOME DON'TS.

- (1) Don't leave fallen or damaged fruit lying under the trees; otherwise careful stripping of the fruit may be rendered useless.
- (2) Don't have grass or weeds growing under or near fruit trees, as this makes the detection of fallen fruit difficult and costly. It also shelters maggots and pupae from the direct sun's heat, which is often fatal to the fly when in either of these stages.
- (3) Don't leave "out-of-season" Oranges or those ripening before the maincrop on the trees, as they will supply food for maggots, and so enable a late brood of flies to emerge close on the main Orange crop, which will then be immediately attacked.
- (4) Don't forget that the progeny of one fly may reach incalculable numbers during the season, extending from Apricots to late Oranges, and, therefore, the destruction of flies or other larvae in early or late season is of the utmost importance.
- (5) Don't forget that the longer the interval can be made between the main crops of fruits, so much the worse it is for the fly.
- (6) Don't forget that there may be as many as 12 generations of flies in a year.

SUPPLIERS OF ORCHARD REQUIREMENTS

"Buzacott" Dry Dusts, for Truck Crops.—A complete range of scientifically combined **Insecticides** and **Fungicides**. 100 per cent. active.



"Buzacott" Air feed Knapsack Duster.—Will deliver coarse Tobacco Dust.

S.W. Lime Sulphur Powder.—The dry product which is fast displacing Lime Sulphur Solution. **For Convenience, Economy and Safety**—Don't pay freight on water.

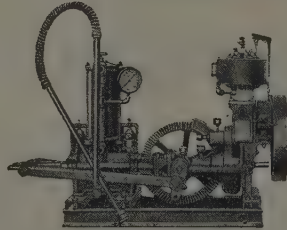
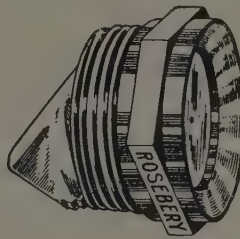


Fig. 322.—"Buzacott" Power spraying Unit. A complete spraying unit ready to mount on any convenient transport.



"Aero" Arsenate of Lead and "Buzacott" Sulphur Smoke.—The accepted combined spray mixture for Codlin Moth and Powdery Mildew.



Rosebery Spray Nozzle.—Gives a driving Mist Spray and won't clog.



Edgell Spray Pistol.—Eliminates the cumbersome spray rod—saves labor and spray material.



Fig. 502.—"Buzacott" Barrel Sprayer.—All working parts are above the barrel.



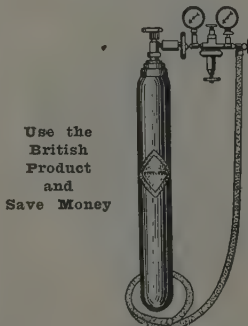
Fig. 513 — "Buzacott" Hand Sprayer. — The highest pressure hand sprayer made.

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Re-Coloring Mature Citrus Fruits.



Use the
British
Product
and
Save Money

Heightens
and
Brightens
the
Color.

Ethylene Gas.

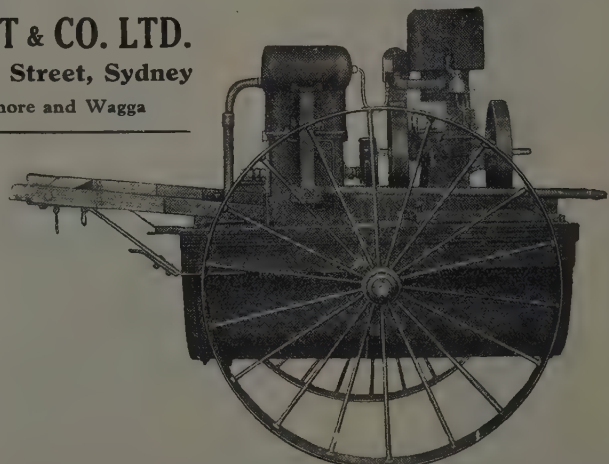


Fig. 472.—"Buzacott" Power Sprayer.—One of four standard Power Spraying Plants representing the last word in Spraying equipment. Porcelain-lined Cylinder, twin Cylinder Pump running in oil, 1 1/2/2 1/2 vertical engine, totally enclosed.

History and Development of the Fruit Industry

One of Australia's Greatest Primary Productions

The history and development of fruit growing in Australia from its very humble beginnings up to the time when it has assumed the proportions of being one of the largest primary industries in the country, warrants a place in the records of many achievements attained by one of the world's youngest nations.

Its importance is appreciated when we consider that it gives employment to many thousands of skilled workers, provides many families with a highly respected means of livelihood, provides an essential article of diet for the health of the nation, and brings into the country much revenue by means of the export trade associated with it.

The fruit industry, covering deciduous, Citrus, canned fruits and dried fruits, besides many other by-products, and subsidiary requirements in the form of machinery, fertilisers, transport equipment, cold stores, packing sheds and other necessities of the industry, now ranks as sixth in the products of the country, and, taking last year's figures as a basis of comparison, represents an industry worth at least twelve million pounds per annum to Australia.

Historical.

In August, 1770, Captain James Cook, wrote the following. It is an extract from the journal he wrote during the voyage of H.M.S. "Endeavour," 1768-1771, after he had completed the navigation of the entire east coast of Australia.

"We are to consider that we see this country in the pure state of nature; the industry of man has had nothing to do with any part of it, and yet we find all such things as nature hath bestowed upon it in a flourishing state. In this extensive country it can never be doubted but what most sorts of grain, fruits, roots, etc., of every kind would flourish here were they once brought hither, planted and cultivated by the hand of industry; and here are provender for more cattle, at all seasons of the year, than ever can be brought into this country."

As far back as 1788 it is recorded that Governor Arthur Phillip planted Apples, Oranges, Figs, Pears and Grapevines in New South Wales from seeds and plants brought from Rio de Janeiro and the Cape of Good Hope by ships calling at these ports en route from England to Australia, and that Lieutenant Bligh planted Apple trees in Tasmania.

Tasmania still boasts Apple trees which were planted about 1838 by Lady Franklin, wife of the then Governor of Tasmania. These trees were planted at York Town, West Tamar, and still bear fruit. They were imported from England, and, amongst other varieties, included Alfriston and Stone Pippin, but as John Pascoe Fawcner propagated Apple trees prior to the arrival of Sir John Franklin in Tasmania, importations of trees prior to those brought out by Lady Franklin must have taken place.

Tasmania.

The island State may thus rightly claim to have been the first State successfully to grow fruit trees. The fa-

Nature has bountifully blessed Australia with suitable fertile soil and a wide range of climate that permits her to produce all kinds of fruit equal to the best in the world. In the following article we have attempted to very briefly tell the story of the development of this immense and valuable industry, its contribution to the commercial life of the country and its future prospects.

mous Huon Valley had the honor of establishing and maintaining the oldest commercial orchards, the first of which was planted by the late Thomas Judd, followed by such well-known late pioneers of Tasmania as Silas Parson, William Barnett, William Cuthbert, Mr. Coleman and the Pages, besides others whose descendants are still growing Apples in Tasmania.

Amongst varieties planted by these early pioneers were Windsor Pippin, Ribston Pippin, Scarlet Nonpareil (known in Tasmania as Scarlet Pearmain), Stone Pippin, Mobbs Codling, Sturmer and other old English varieties.

Other districts followed Huon's lead, and plantings were later extended to the Tamar and Mersey valleys, and the Peninsula, where some of the original trees are still bearing good crops.

To-day Tasmania has some 33,000 acres under fruit, of which Apples represent 27,800 acres, returning a value of approximately £900,000 per annum, and exporting almost two-thirds of the total quantity of Australian Apples going overseas.

In Victoria.

Records prove that Lieut. Grant, who came out as a surveyor in 1800, brought with him various seeds supplied by a nurseryman named John Churchill, of Dawlish, England, as well as some Apple seeds presented to him by Lady Elizabeth Percy, as a contribution to the needs of the new settlement.

When, in 1834, Edward Henty came to the mainland from Tasmania, he brought with him a number of fruit trees from Fawcner's nursery in Launceston and planted them in Portland, where they soon bore fruit. Three years later, John Pascoe Fawcner landed in Melbourne, bringing with him 2,500 fruit trees from Tasmania, which he planted along the Yarra River, and newspaper files show that he shortly afterwards advertised fruit trees for sale, from which we may reasonably consider him as Victoria's first nurseryman, just as he was Tasmania's first propagator of fruit trees for sale.

The first seedling Apple of which there is any definite record was raised by Daniel Bunce, who later married John Batman's daughter. He became Director of the Geelong Botanical Gardens, and there raised an Apple, which he, in 1872, sent to the Burnley Gardens, where it is still retained in their collection. Bunce advertised trees and seeds for sale in 1841.

The Cole family were amongst the first early Victorian fruit raisers, establishing a nursery on the Yarra bank in 1845. Later, removing to Hawthorn, T. C. Cole established the Shoreland Nursery, which developed the Shoreland Queen Apple.

Victoria now has an area of 77,173 acres under fruit and 39,144 acres under vines, returning an annual yield valued at £3,831,477. Although in point of size, Victoria is the smallest State on the mainland, it has the largest acreage under fruit, and produces the greatest propor-

Service *plus* Satisfaction

SUNSHINE
AND
MASSEY HARRIS

Implements and Machines for farm, orchard, vineyard, and pasture improvement, have established an enviable reputation for performances under Australian conditions—a reputation that is founded on quality, dependability, and service. It costs nothing to get details of construction, prices and terms. Ask the local agent, or write to the address below.

MASSEY-HARRIS ORCHARD PLOUGH



both vertical and horizontal – and a clearance of 21 inches at throat. Cash price, bare, free on trucks Sunshine . . £5/7/3

The popular New Model – with 6-inch steel share, movable handles for ploughing close up under trees, and adjustable to suit height of the user. Ample draught range –

Illustrated catalogue – free on request – describes a full range of orchard and vineyard implements.

Write for a copy.

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SUNSHINE HARVESTER WORKS, SUNSHINE, VIC.

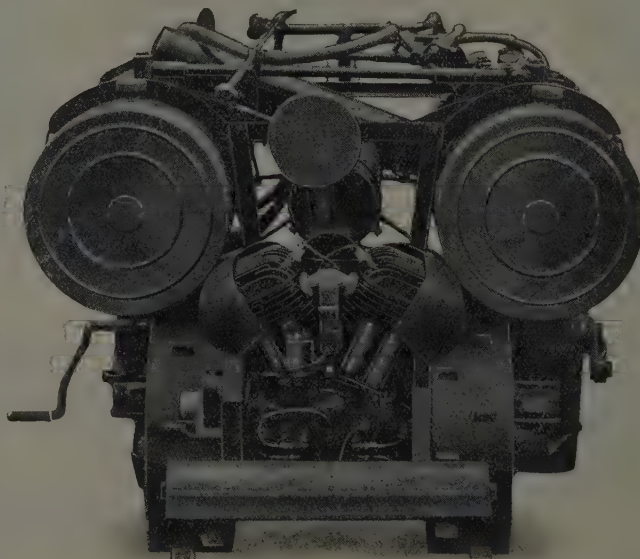
The Howard Rotary Hoe "Eight"

With Power Spray

The Howard Rotary Hoe "Eight" is the ideal Cultivator for farm or orchard work. Heavy crops of all kinds of growth can be chopped up, and will make a perfect mulch in one operation.

No ploughing or harrowing required. Tills the soil from one to eight inches deep.

Works right up to the trees. Cuts three feet wide.



The "Auto - Cult" Power Spray fits on and is powered by the Rotary Hoe "Eight." Up to 300 lbs. pressure can be obtained.

The two tanks are made of copper, and hold 40 gals.

Can be fitted to Hoe in 5 minutes. Two Spray Nozzles are standard equipment.

Many other attachments at small extra cost.

Power Pulley standard equipment.

PLOUGHING and HARROWING

Completed in One Operation at Cost of under 2/- per acre.

Write for illustrated pamphlets and any particulars required.

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Howard Auto-Cultivators Ltd.

NORTHMEAD,
(Parramatta) N.S.W.

tion of Australian canned fruits and dried fruits. Victoria also leads the way in cold storage facilities, having storage space for about 1½ million cases of fruit.

New South Wales.

Apple orchards were not planted to any extent in the early days of the settlement of N.S.W., but later on a number sprang up in the coastal districts near Sydney. The Apple market in Sydney was supplied mostly from Victoria and Tasmania for a long time. In latter years, however, the fruit industry has made great advance, and N.S.W. is now a heavy exporter of fruit, and ranks next to Victoria in total production. The Murrumbidgee Irrigation Area and several non-irrigated areas are to-day producing high-grade Apples. New South Wales produces well above half of the Citrus fruits grown in the Commonwealth, having over 30,000 acres in bearing.

Actually, in large fruits, N.S.W. leads Victoria in acreage, but the large area under vines in Victoria gives her the greatest total acreage in Australia. N.S.W. has 83,909 acres under fruit and 15,444 acres under vines, representing a production value of £2,927,110 per annum. In the north-eastern portion of the State, Bananas are plentifully and successfully grown, and form a large part of the State's fruit production.

Queensland.

There seems to be no record of the early introduction of fruit into this State. Probably the many tropical fruits now grown under expert conditions were indigenous and grew prolifically. The Stanthorpe district is about the only large Apple area, although a few small orchards are seen in the Herberton district in the far north.

More of the tropical varieties of fruit are grown in Queensland, the principal one being the Banana, of which over 18,000 acres are under cultivation. Queensland's second largest fruit production comes from Pineapples, which thrive in the tropical climate of that State. This fruit is popular in both fresh and canned forms, and Queensland has a virtual monopoly of the Pineapple trade; nearly 6,000 acres are under cultivation. The Pineapple industry represents approximately £200,000 per year to the State.

South Australia.

No information is available regarding the early stages of South Australia's fruit growing development, but as most of the orchards are situated in the hills within a short distance of the city, it is presumed that the early pioneers planted only for their own use. To-day South Australia is one of the smallest producers of the larger fruits in Australia, but produces about 75 per cent. of all wines pressed in the Commonwealth. Whilst the value of her fruits is only £588,000, she produces over twelve million gallons of wine per annum from 52,479 acres, Clare and Angaston being noted wine districts. Large quantities of Citrus fruits are grown in the famous Berri and Renmark districts along the Murray River, and have gained fame for their quality.

Western Australia.

While nearly all the generally known history of Western Australia begins with the gold rush days at the end of last century, the growing of fruits on a commercial scale has only been known during the last twenty years, when attention began to be given to the growing of Apples for export. Though late in starting, West Aus-

tralian Apples are very favorably known and welcomed on the European markets, having been kept to a uniform standard of quality. Citrus varieties are mostly grown in the Gosnells and Harvey districts, and Apples in Mt. Barker, the Darling Ranges and Bridgetown districts. With only 20,000 acres under fruit, W.A. is the smallest fruit producing State in the Commonwealth, and with her small population (less than half a million), her local consumption must necessarily be supplemented by export markets, which she is steadily developing. Even so, the fruit industry is worth close on a million pounds to the State, is well organised, and has promise of great development.

The year ending with June, 1934, saw 102,000 more cases of Apples shipped than the 1933 season, in which season thrips was bad in the Mt. Barker-Albany district, lessening the quantity for export. Pears were lighter in 1934 and exports decreased by 13,198 cases, as compared with 1933. Dried vine fruits exported in 1933 amounted to 44,685 cases, and in 1934 to 46,307 cases. Oranges, never a big export commodity, in 1933 totalled only 4,367 cases, and in 1934, 3,860 cases.

Disposition of Fruit Trees.

With the foregoing history of each State in mind, let us note that at the present time Australia has an area of 338,870 acres under actual bearing in the following proportions:—Apples, 81,893 acres; Oranges (including Mandarins), 39,237; Peaches, 18,488; Pears, 17,538; Plums (including Prunes), 14,484; Bananas, 13,497; Apricots, 10,342; Lemons, 4,691; Pineapples, 4,629; Berries, 2,226; Nuts, 2,256; other fruits, 15,141; and Grape vines, 114,446 acres.

An Enormous Yield.

The yields received from the above in 1933 (the latest official returns available) are set out in the following comparative table:—

Average Yield of Australian Fruits.

	Per Acre.	Total Yield.	
	Bushels.	Bushels.	Total Value.
Apples	131.86	10,798,528	£2,266,713
Oranges	116.47	4,337,578	1,308,139
(including Mandarines)			
Peaches	113.08	2,090,584	699,296
Pears	122.76	2,152,887	504,634
Plums (including Prunes)	82.40	1,183,600	227,172
Bananas	167.19	2,256,520	907,820
Apricots	97.29	1,006,204	317,213
Lemons	114.30	536,160	200,256
Pineapples . doz.	259.47	1,201,074	202,694
Berries . . . cwt.	—	83,709	151,740
Nuts lbs.	624.74	1,409,403	46,971
Other fruits bush.	—	830,431	479,158
		Wine—	
Grape Vines	—	16,417,661 gals..	} 3,917,690
		Dried Fruits—	
		1,540,500 cwt.	



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"Factors Producing Quality Fruit"

(By G. de Vahl Davis, B.Sc., Agr.)

IT seems to be generally admitted that the solution of the difficulties that oppose and threaten to overwhelm the fruit-growing industry lies in that vague but entirely desirable matter of improved quality. Victoria has shown where she stands, and incidentally given a much needed lead to the other Apple-growing States by the inception of the "Victoria Mark" scheme. The problem before the grower, therefore, is to evolve a system that will at the one time produce the desired effect and not involve him too deeply in further expenditure.

Now, at the outset, it would be futile to say that any grower may, with the facilities to hand, revolutionise his production. With the exception of a few "quantity-fanatics" every grower has, in the past broadly tried to produce a quality product. The trouble has been that much of the effort was futile. To-day, however, "quality" is no more a matter of a slight increase in profit—it is a brutal matter which is to decide, for many, survival or elimination. Every ounce of energy, therefore, every penny that is spent, must be put to the best possible use; there must be no more waste.

What is "Quality."

Under the general expression "quality of fruit" falls all such matters as color in relation to variety, sweetness and acidity, size in relation to variety, keeping qualities, shape and cleanliness of skin, etc. With the majority of these, the main determining factors are the location and type of property, sunshine, moisture and temperature. The age of the trees is, too, of some importance. Every grower will be familiar with the phenomenon of a tree that is on the point of death putting forth a tremendous effort and producing one or two extra heavy crops of extra large fruit. Whether the tree is dying of old age or from disease seems not to affect this seeming last-minute attempt to achieve immortality by the reproduction of the species.

Matters which are, generally, more directly in the control of growers, and which have a bearing on the maintenance of high quality, are (1) Spraying, to eliminate pests which might cause distortion or skin blemish; (2) Pruning and thinning, which regulate size and output of fruit, and (3) the correct use of plant foods, which controls, in greater or less degree, all the quality factors. With the two, first named of these three groups, this article does not intend to deal. Each is a matter for specialists and neither is capable of description. Rather are they matters for demonstration and growers, or groups of growers who desire instruction in the latest developments will be readily able to arrange for an officer of the Department of Agriculture to visit them.

It must be remembered that with our limited resources, we, in Australia, are greatly handicapped, in comparison with overseas countries in the facilities for research into these problems. In the absence, therefore, of any considerable volume of local experience, our authorities are compelled, rightly, to play safe. Without criticism of this policy, the writer is of the opinion that our situation is too desperate for conservatism to dominate our out-

look and we should look abroad for a lead. In the notes that follow therefore, extensive use has been made of overseas work, especially that of Long Ashton and East Malling, in the United Kingdom.

The Effects of Plant-foods.

Broadly, it may be stated that the work has tended to prove that the nutritive elements having most importance in the matter of quality are nitrogen and potash. Phosphoric acid, whilst of great importance in the regulation of quantity—and this is especially true in Australia—does not seem largely to influence quality one way or the other.

Speaking of the other two plant foods, T. Wallace, of Long Ashton, writes as follows:—"Nitrogenous and potassic manures exert remarkable and great effects upon quality characters of fruit. Where either is deficient, yields are very low: in the case of potash deficiency, the quality is also very poor, and the major portion of the crop may be useless. Where potash is present in sufficient supply, nitrogen may be used to regulate quality, the choice dessert grade (colored fruits) being produced under fairly 'low nitrogen' conditions and high quality cooking grades by relatively high nitrogenous feeding."

The establishment of this fact is of high local importance since by its proper use, considerable economy may be effected in the manuring of highly colored export grades. In such cases, it is clear that the right practice is to increase the proportion of potash in the mixture that is used and to tend to rely more on green manuring than upon fertilisers for the supply of nitrogen.

Another important finding of Long Ashton was that the importance of nitrogen is less under conditions of cultivation in orchards than in orchards grown under sod whilst, with potash, the position is reversed, that is to say, with clean cultivation potash is important, whilst under grass-culture, it is less so. The reason for this is clear. Where an orchard is left under sod, the grass consumes a considerable amount of nitrogen, whilst "nitrification" (i.e., the natural production of usable nitrogen by soil bacteria) comes almost to a standstill. Thus, in clean cultivated orchards, such as we are compelled to have in Australia, where the conservation of water is of greater importance than in England, with its lower evaporation, the natural supply of nitrogen is relatively higher and so greater attention must be given to the supply of potash, so as to avoid the dangers attendant upon "over-nitrogenation."

Control of Leaf Scorch.

Reference was made earlier to the effects of diseases upon quality and the importance of spraying to avoid this trouble. There are, however, certain diseases which are physiological in nature, that is they are caused, not by outside organisms, but by internal conditions. The most important of these from the point of view of Apple-growing, is "leaf scorch." It has now been conclusively proved that, whilst there are a number of contributing causes of this trouble, the major cause is insufficient supply of potash in the soil. By adequate manuring with

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sulphate of potash, even the most drastic cases can be either substantially improved and rendered profitable or even transformed into highly successful plantations.

In this case, so important is it to see that the proportion of potash is outstanding, that it is recommended to drop the use of nitrogen altogether for a year or two, and to apply double or even treble doses of potash; then, over a number of years, nitrogen may be re-introduced and the amount of potash gradually reduced by about a pound a tree a year, until the two are in balance again.

Potash manuring has been proved to afford protection from low temperature breakdown, which is so often a cause of serious loss in and after low temperature storage. The mechanism of this protection is not clearly understood, but the effect is positive. (Hort. Educ. Assn. Year book, 1932, p. 71.)

Bitter Pit.

One Australian grower of repute has claimed to cure a very bad case of bitter pit in "Cleos." by the annual application of 8 to 10 lbs. per tree, per annum, of muriate of potash. This is dug in around the tree to a depth of about a foot, in the autumn. The author can vouch for the fact that out of a group of eight "Cleos.", all of which formerly were badly affected with pit, four treated as described, now give sound fruits, whilst the remainder still give more or less pitted fruits according to seasonal conditions. (Anyone interested in following this matter further, will be supplied with the name and address of the grower concerned, on application to the writer, c/o "The Fruit World.")

Keeping Quality.

On the general question of keeping quality, some interesting work has been carried out by Mr. M. B. Davis, Dominion Horticulturist, in Canada. This writer pointed out in the "Canadian Horticultural Magazine" for April, 1934, that observations had shown the folly of judging the value of fertiliser treatments by yield results alone, or even by these in correlation with observations. He desired, he said, to impress upon his readers the fact that a plant, making excellent growth and possessing excellent foliage was not necessarily one capable of producing good-keeping fruit. As his results, working on various types of storage trouble were very uniform, it will suffice to reproduce his summary of fertiliser effects in the case of "stippen" or internal corkiness.

Trees treated with:—

Lime only—Cork very bad.

No fertiliser—Very little cork, low vigor.

Potassium only—No cork, vigor only moderate.

Nitrogen only—Cork very bad, trees very vigorous.

Phosphorus only—No cork, vigor poor.

Complete fertiliser—Very little cork, very good vigor.

The Practical Application.

Illustrations might be multiplied almost indefinitely, but all would point to the same general results. Phosphorus is the "developmental" factor, without which especially in Australia, growth is very severely restricted. Nitrogen is the vegetative or growth factor, possessing however, the dangerous property of giving a forced or overgrown product with a liability to physiological weakness. Potash is, to a very high degree, the health factor, of but limited value in the matter of producing growth as such, but with the most valuable property of "hardening" or fortifying the vigorous product of nitrogenous fertilisation and rendering it immune to many of the troubles to which, in the absence of a balance of potash, it is heir. The practical application of all this is that a complete fertiliser is the one safe line to follow, and it

seems to be clear that the percentage of potash, for healthy trees, must be at least equal to that of nitrogen, in the mixture. When the trees show signs of weakness or liability to "scorchy" foliage, the heavy potash treatment must be adopted.

On the economic side, one will just repeat advice that has been given elsewhere. If the financial position of a grower is such that he cannot adequately prune, spray and feed his whole orchard, let him not make the mistake of half treating the whole block. Pick out the half, or even the third, of the area that has the best-grown trees of the best-selling varieties, and concentrate all his work and all his expenditure thereon. It will soon prove, as it has in many other directions, far more profitable than the old-fashioned conception of "broad acres and never mind the detail."

In conclusion, as a reminder, here are the words of a U.S.A. grower, extracted from the "American Fruit Grower," Vol. 51, No. 1.

"We find that nitrogen gives size to the fruit, phosphoric acid seems to help maturity and the potash allows us to pick riper fruit that will stand up."

Nitrogen

IN . .

Orchard Soils.

(By R. A. Boyle, M.Sc.)



The Grading of Soils

According to their Content

of Available Nitrogen.

ONE OF THE FIRST STEPS made in setting out to crop any soil with any plant intelligently, is the estimation, mental or otherwise, of its available nitrogen supply. Although doubtless there are many tillers of the soil who are not aware of the fact, such an estimate is actually made unconsciously or otherwise by almost every grower to-day. To give some examples: Almost anyone who knows anything at all about soils soon concludes whether a particular soil is rich, poor or medium from the cropping point of view. Such a determination is usually made, in the first place, by sowing a crop and observing its growth when it is the supply of available nitrogen, more than anything else, in that soil which determine the amount of growth. Again, all wheat growers under suitable climatic conditions have learnt long ago that wheat does much better after the soil has been spelled, fallowed or sown down to a leguminous crop and, vice versa, that it does not do nearly so well after any other crop. Whether or not phosphate is added makes little difference in this regard because the supply of nitrogen governs the situation, nitrogen having been replenished in the former case and depleted in the latter. One area of soil naturally grows bigger trees and more cover growth than another: that again generally indicates the supply of available nitrogen.

Now, if it were just a matter of analysing the soil and learning what was the amount of available nitrogen which it contained and then bringing the figure up to a suitable one by adding nitrogen in the cheapest possible form, e.g., by fallowing or the turning under of legumes, it would be a fairly simple problem. But, unfortunately, it is not so easy, chiefly for these two reasons:—

What Constitutes Available Nitrogen?

In the agricultural sense nitrogen is termed either organic, when derived from matter which has once passed through the living processes, or inorganic, chemical or artificial. Actually, all nitrogen, except that which exists in the atmosphere, is most probably originally derived from some living source, e.g., the ammonia in "gas works" sulphate of ammonia is derived from coal, and doubtless also the nitrate in Chilean nitrate of soda has an organic origin. Further, a certain proportion of the so-called "organic" nitrogen that is added to soils by various means, e.g., fallow, legumes, animal manure, etc., ultimately changes either to ammonia or nitrate, identical with that contained in sulphate of ammonia or nitrate of soda or any other ammonia or nitrate compound derived from "artificial" sources. Both ammonia and nitrate are soluble in the soil water and are considered to be available to plants: it is the soil's content of these two forms that is generally indicated when referring to its supply of available nitrogen. No doubt there are a few orchardists fortunate enough to have secured soils which for some reason or other do supply sufficient available nitrogen at the right time for their trees over long periods, but there are not many of these, and certainly no citrus growers, citrus trees demanding a particularly high soil content of nitrogen. It is often due to a conviction that he may be one of these few that a grower finds himself dropping back in the race for profits.

Importance of Time of Availability.

The main point for consideration by growers is, therefore, not only how much ammonia or nitrate their soil contains at any particular time, but how much is available just when their crop wants it most. As regards the time when deciduous fruit trees require available nitrogen, i.e., ammonia or nitrate, that time is the spring, and

1. The soil's content of available nitrogen changes from day to day and season to season.
2. Crops, especially deciduous fruit trees, are chiefly only concerned with available nitrogen during a relatively short period of their growth.

particularly the period between bud burst and fruit set. So the point arises, how much ammonia or nitrate does your soil contain during that period? It requires expert and costly sampling and analysis to make anything like an exact determination on this point, but it may be taken for granted that there are very few orchardists, if any, so fortunately situated that they would not benefit by an addition or either of these forms just prior to this critical period. That this desirable nitrogen can be supplied by such materials as animal manures, leguminous cover crops and other organic forms which are, rightly or wrongly, sought after because they also supply humus-giving material or last longer in the soil, deserves more consideration than many orchardists have hitherto given to the subject.

Factors Governing the Time of Availability.

It was mentioned above that a considerable proportion of all organic forms changed in the soil to ammonia or nitrate but, to what extent and when, an attempt will now be made to indicate briefly.

There exist in all soils, organisms (bacteria, fungi, etc.) which multiply in direct proportion to the amount of vegetable matter, nitrogen, and to a lesser extent certain minerals present, which constitute their food supply. Their method of dealing with nitrogen may be likened to a consumption of nitrogen in a complex organic form and an excretion of a certain proportion as ammonia or nitrate. For this reason alone, their multiplication to the greatest possible extent in any soil, by providing them with vegetable matter, is important. In addition to a supply of vegetable matter, two other contributions at least are necessary. One is soil warmth and the other the absence of too much acidity. The last mentioned condition explains why the periodic liming of most soils is so desirable. It is the question of soil temperature, however, which chiefly governs the supply of available nitrogen from organic forms at particular times of the year. The activity of these soil organisms is at its lowest ebb in the winter and early spring. Hence it is doubtful whether much ammonia or nitrate can be expected to be present in the soil during that period of critical requirement by trees if organic forms are the only forms of nitrogen supplied.

The foregoing endeavors in all too brief a space to explain why most renowned writers on the subject of orcharding, horticultural experts and other reputable advisors throughout the world almost invariably advocate the application of some form, either of ammonia or nitrate, to orchard soils just prior to the early spring. Organic forms, such as those derived from animal refuse or leguminous cover crops, cannot always be depended upon as sources of available nitrogen at this critical period.

Vegetable Matter, the Sole Source of "Body" in Soils.

This article would create an entirely wrong impression if it were considered to belittle the advantages of growing and turning under leguminous green manure crops, or even stable or farmyard manure, provided such could be obtained in sufficient quantity at a low enough price. It has already been stated that the multiplication in the soil of organisms of vital importance to agriculture bears a direct relation to the supply of vegetable matter upon which they depend absolutely for their existence. But there is another reason why the supply of vegetable matter is so important, and that is that after the soil organisms have extracted all that they require, a final decomposition product called "humus" remains. It is this substance "humus" which growers so aptly refer to as

"body," and there is no further need for this article to stress the utmost importance of this substance. But it is to be noted that so-called "body" can only be supplied through the medium of vegetable matter such as root remains, leaves and stems of plants (straw), etc., and not from artificial fertilisers, flesh, bone or any animal tissue, these latter being suppliers of plant nutrients only of varying degrees of availability.

THE IMPORTANCE OF ORCHARD CULTIVATION.

The cultivation of the soil in the orchard has the following advantages:—

1. It prevents evaporation by reducing the conductivity of heat and also by breaking the capillary tubes in the soil, through which the subsoil moisture escapes.
2. By letting the air into the soil, it enables the bacteria to breed quickly and extract the nitrogen from the air, which is so necessary to plant life.
3. The broken surface enables the moisture in the air to circulate freely through the soil, and much of this moisture is absorbed and held by the ground when heavy dews take place.
4. It kills the weeds which use a large percentage of the useful salts in the soil.

How Cultivation Conserves Moisture.

There are, perhaps, some growers who do not understand how moisture in the soil can be conserved by cultivation, as mentioned above. Turning over the soil on the surface certainly causes it to become drier and gives the impression that the operation only facilitates the escape of moisture. The real fact is that this broken layer on the surface acts as a blanket through which the moisture can only escape slowly. Most soils possess a capillary action, which means that they can draw moisture from deep sources by the action of the tiny spaces which exist between the individual soil particles. If this capillarity existed clear to the surface of the ground, as it does when the soil becomes crusted and baked, the soil moisture would be drawn to the surface and evaporated.

When Orchard Cultivation is Necessary.

It is useless to attempt to describe a method of cultivation for the orchard that could be adopted by all growers. So much depends upon the nature of the soil, rainfall, position, etc., that one method suitable for a particular area may be entirely valueless for another. Judgment on the part of the grower is very necessary, and we can do no more in the space available than to give the principles that appear to be in accord with general practice.

Very sandy soil is best ploughed and worked wet to keep it as solid as possible, the surface being broken for an inch or two in the spring, but it should not be worked in the summer, especially when the surface is liable to be blown away. Heavy clay soil should be ploughed when the furrow slice crumbles as it turns. No hard and fast rule can be laid down as to the depth of ploughing, for, as stated above, this depends on the nature of the soil. For general purposes, where the soil is not too sandy, perhaps a normal ploughing in early spring is best, followed by regular harrow cultivation until well into the summer, and then a general ploughing in autumn. It is necessary to dispense with the autumn ploughing in damp areas when permitting the growth of winter green stuff to assist orchard drainage.—"Profitable Fruit Culture."

Packing Apples & Pears.

For Export & Local Markets.

By B. P. Krone, Fruit Packing Instructor, Victorian Dept. of Agriculture.
Reproduced by courtesy from the "Journal of Agriculture," Vic.

TO COMPETE SUCCESSFULLY on overseas markets it is essential that Australian Apple and Pear growers should adopt the methods of packing already in use by other large Apple-producing countries. Growers in the United States of America, South Africa, and New Zealand already have demonstrated the value of the "straight" method of packing Apples in the Canadian Standard fruit case, and if Australian fruit is to meet that of our competitors on equal terms, it is necessary that we should fall into line.

of years with success for all sizes of Oranges, both for local and export markets.

With the more general adoption of this method of packing, bruising and stalk damage will be largely decreased in comparison with the "angle" method, which causes the stalks of certain Apples to press against the cheeks of others.

Packing.

All the counts are packed on the diagonal system; but instead of the Apples being placed at angles to one another, they are placed in the cases with their stalks facing in one direction, with the exception of the last Apples in each layer, which are reversed to prevent stalk damage, as is done with Oranges. This is shown in the accompanying diagrams.

The correct height cannot be obtained unless the packer regulates the tightness of the pack in accordance with the size of the Apples for a given style of pack. The following rule, therefore, should be observed:—The smallest Apples intended for the 3—3 and 3—2 packs should be packed a little more tightly than usual, while the largest Apples intended for these packs should be packed more loosely than usual.



Mr. B. Krone,
Fruit Packing In-
structor, Victoria.

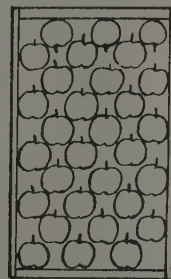
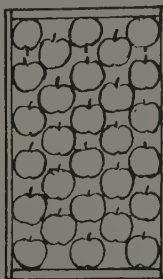


Mr. W. Harris,
Asst. Fruit Packing
Instructor.

The accompanying Apple packing chart for the Canadian "Standard" case (inside measurements — 18 inches long, 11½ inches wide, and 10½ inches deep) has been revised to meet the needs of the Apple exporter. This has been done after careful consideration, based on experience and on observations of the methods of packing in other parts of the world. The diagrams given are self-explanatory, and the chart indicates the methods of packing necessary to produce the various counts.

Experienced packers will notice that the commercial counts have been reduced to a minimum, and, to avoid confusion, "foreign counts" are not described or shown. Any count not shown on the chart may be regarded as a "foreign count," and is not recommended for export.

The "straight" method of diagonal packing is not new to Apple-growers, as many have already adopted it for most of the small as well as for some of the large sizes. Citrus growers also have adopted it for a number



The "Straight" Method of Diagonal Packing.

The accompanying diagrams illustrate the "straight" method of diagonal packing which is necessary in order that the stalks will fit in the spaces between the fruit and not damage it. The last Apples in each layer are reversed. Remember, that "angle" packs are obsolete; they produce foreign counts, and must not be used for export.

It has been found from experience that the most suitable bulge across the centre of the case, before lidding, is ap-



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FRUIT PACKING REQUISITES

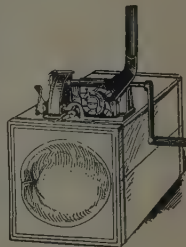


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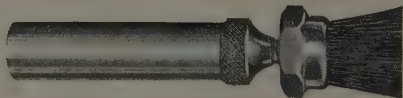
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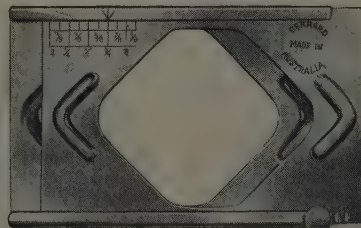
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proximately $1\frac{1}{2}$ inches, while at each end of the top layer the Apples should not project more than about $\frac{3}{8}$ inch, otherwise bruising will occur in the lidding process. The bulge is obtained by selecting Apples very slightly smaller than the rest for the beginning and end of each layer.

Corrugated cardboards should be used at both the top and bottom of the case. Cardboards manufactured in flat colors should be selected and placed in such a manner that the corrugations face the wood of the case, and do not touch the fruit.

Sizing.

It is imperative that the counts and not the size should be branded on the ends of the cases. Remember that standardisation of counts is vital when packing Apples for export. The most suitable counts for export are from 234 to 125 inclusive. The 175 count is an exclusive count for flat Apples. Do not export Jonathans under this count. It should be pointed out that the count is the essence of the contract, and not the diameter of the fruit. The Apples in each case should, of course, be approximately one size. The diameters shown on the chart should be used as a guide only; these may vary slightly with some varieties of Apples. The packer will readily understand that the diameters must be sufficiently large to permit each case being filled to its maximum capacity, but no more.

Incorrect packing of the 125 count is the chief cause of underweight cases arriving in the United Kingdom. Apples too small for the count are responsible.

Wire seal all cases to prevent breakage and ullage in transit. Specifications of timber required for the Canadian "Standard" case:—

Ends.—2 pieces, $11\frac{1}{2}$ inches long, $10\frac{1}{2}$ inches wide, $\frac{3}{4}$ inch thick.

Sides.—4 pieces, $19\frac{1}{2}$ inches long, $5\frac{1}{4}$ inches wide, $\frac{3}{4}$ or $\frac{5}{16}$ inch thick.

*Tops and bottoms. — 4 pieces, $19\frac{1}{2}$ inches long, $5\frac{1}{2}$ inches wide, $\frac{3}{16}$ inch thick.

Cleats.—4 pieces, $11\frac{1}{2}$ inches long, $\frac{3}{4}$ inch wide, $\frac{3}{4}$ inch thick.

*Tops are also cut $\frac{1}{4}$ inch longer to allow for the bulge.

PACKING CHART FOR THE CANADIAN CASE.

Remarks.	Size.	Pack	Layer	Layers	Total
Flat and round shapes.	Inches.				
Pack more tightly than usual.	$2\frac{1}{2}$	3-3	8 x 7	6	270
All shapes. Pack more tightly than usual.	$2\frac{5}{16}$	3-3	7 x 7	6	252
All shapes. Normal pack.	$2\frac{3}{8}$	3-3	7 x 6	6	234
All shapes. Normal pack.	$2\frac{7}{16}$	3-3	6 x 6	6	216
All shapes. Normal pack.	$2\frac{1}{2}$	3-3	6 x 5	6	198
All shapes. Pack more loosely than usual.	$2\frac{9}{16}$	3-3	5 x 5	6	180
Flat Apples only. Pack more tightly than usual.	$2\frac{11}{16}$	3-2	7 x 7	5	175
All shapes. Normal pack.	$2\frac{11}{16}$	3-2	7 x 6	5	163
All shapes. Normal pack.	$2\frac{3}{4}$	3-2	6 x 6	5	150
All shapes. Normal pack.	$2\frac{13}{16}$	3-2	6 x 5	5	138
All shapes. Normal pack.	$2\frac{15}{16}$	3-2	5 x 5	5	125
All shapes. Normal pack.	$3\frac{1}{16}$	3-2	5 x 4	5	113
All shapes. Normal pack.	$3\frac{3}{16}$	3-2	4 x 4	5	100
Flat Apples only. Pack tightly.	$3\frac{5}{16}$	2-2	6 x 6	4	96
Round Apples. Pack more loosely than usual.	$3\frac{5}{16}$	3-2	4 x 3	5	88
Flat Apples only.	$3\frac{3}{8}$	2-2	6 x 5	4	88

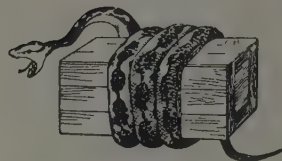


Grading and Packing Apples at a Victorian Fruit Packing Shed.

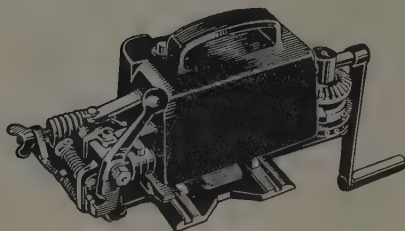
PYTHON

Wire Strapping Machines .. and .. Accessories

(All Australian)

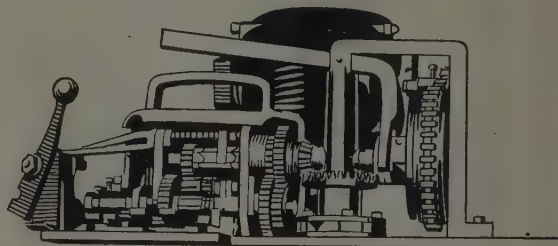


Automatic Hand Operated Machine.

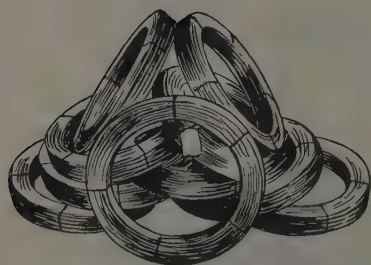


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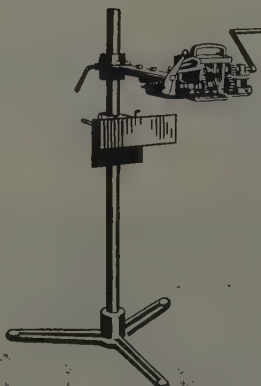
Electrically Driven Automatic Machine.



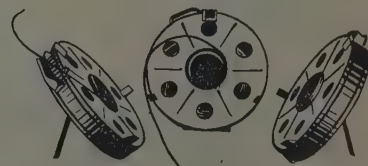
The only small Power Machine for wire strapping on the world's market. No loose strapping with the Python Machines—every case wired has the same amount of tension, irrespective of who operates the machine. When two wires are round a case both wires are carrying the same proportion of the weight.



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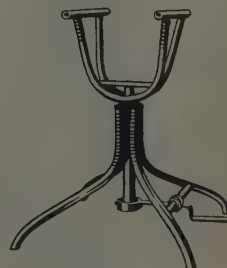
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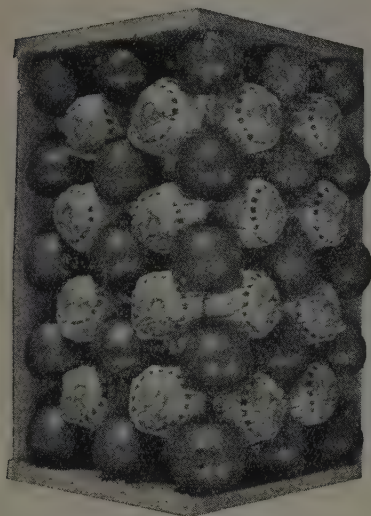
Specially adapted for use in the packing of fruit, eggs, butter and all classes of light packing.

THE AUSTRALIAN DUMP CASE.

No change has been made in the method of packing the Australian Dump Case. The "angle" method of diagonal packing is still recommended.

When the dump case is used counts smaller than 245

not be packed too high or too low; either is harmful, and results in bruised fruit. For the best results the top layer should project about $\frac{1}{2}$ inch above the top of the case before lidding.



"Granny Smith" Apples packed in the standard case.



The 3-2 Pack in the Dump Case.

The illustration on the left shows how to commence the first and second layers. Note the angles at which the apples are placed. The numbers show the commencement of the second layer with the apples resting on the pockets or spaces caused by the way the fruits beneath are packed. The illustration on the right shows the finished case of $2\frac{1}{2}$ inch apples, 5 x 5 layer, 7 layers: Total 175.

or larger than 120 are not recommended for export. The accompanying chart shows methods of packing all sizes of Apples, from $2\frac{1}{4}$ inches to $3\frac{1}{2}$ inches, but growers are strongly advised not to export fruit 3 inches and over in diameter.

Corrugated cardboards manufactured in fast colors should be used at the top, bottom and each side of the cases; these should be placed in such a manner that the corrugations face the wood of the case and not touching the fruit.

Lack of uniformity in the manufacture of this case has from time to time been the cause of severe criticism from the export trade; therefore, the following specifications should not be varied in the slightest particular:—

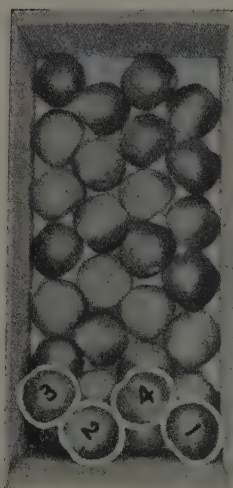
Ends.—2 pieces, $14\frac{1}{2}$ inches long, 8 $2\frac{2}{3}$ inches wide, $\frac{3}{4}$ inch thick.

Sides.—6 pieces, $19\frac{1}{2}$ inches long, 4 $\frac{5}{8}$ inches wide, $\frac{3}{8}$ inch thick.

Tops and bottoms.—4 pieces, $19\frac{1}{2}$ inches long, $4\frac{1}{2}$ inches wide, $\frac{1}{2}$ inch thick.

(These specifications apply only to softwood, or seasoned and dressed hardwood.)

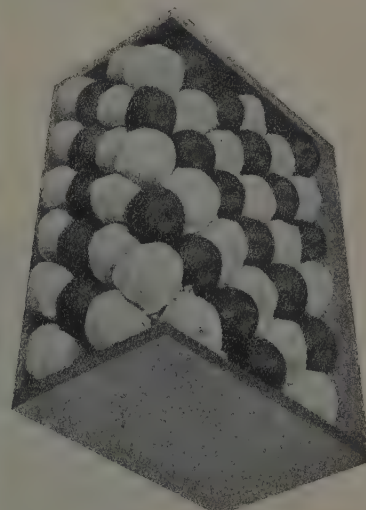
All exportable sizes, irrespective of the pack, fit firmly but not too tightly in the Dump case. The Apples should



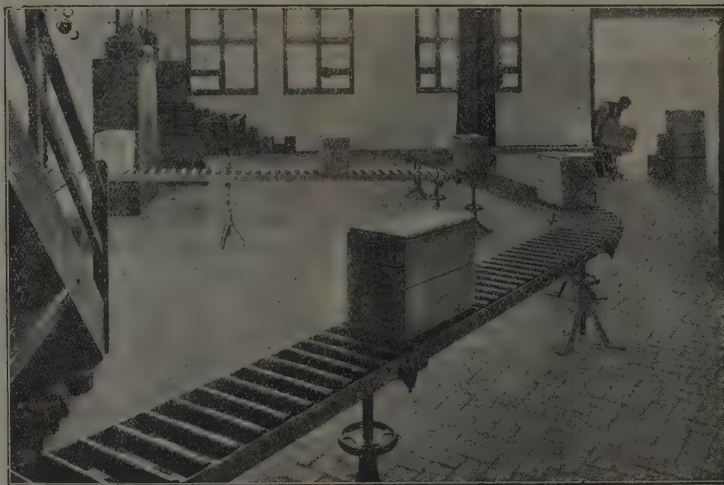
The 2-2 Pack in the Dump Case.

Left.—The numbers show the angles at which the apples should be placed in the first and second layers.

Right.—Finished case of $2\frac{1}{4}$ inch apples, 6 x 5 layer, 6 layers: Total 132.



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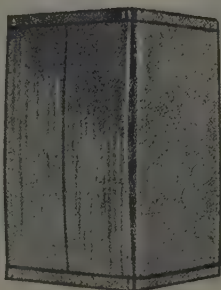
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Canadian Standard Bushel Case as
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1. Preferred by 90 per cent. English and Continental buyers.
2. Scientifically Designed to Eliminate Bruising in transit, thereby Reducing Waste.
3. Full drawback of Duty Allowed on all cases exported.
4. Half Rail Freight of Hardwood Cases.
5. 25 per cent. Rebate on Rail Freight for full trucks.
6. All Timber Cut to Exact Sizes, making it an easy matter to assemble a symmetrical case.
7. Brings Better Returns.

Chart for Packing Apples in the Australian Dump Case

(Inside Measurements: 18 inches long, 8 2/3 inches wide, 14 1/2 inches deep.)

Approximate Size. Inches.	Pack.	Layer.	Layers.	Total.	Remarks.	Average net. Weight if Rome Beauties.	Average net. Weight if Jonathans.
2 1/2	3-2	8 x 8	7	280	Small flat shape	..	..
	3-2	8 x 7	7	263	Flat shapes	..	..
	3-2	7 x 7	7	245	Small quarters . . .	49 1/2	43
	3-2	7 x 6	7	228	Medium quarters ..	49	43
	3-2	6 x 6	7	210	Large quarters . . .	48	32
2 1/2	3-2	6 x 5	7	193	Small halves	47	43
	3-2	5 x 5	7	175	Medium halves . . .	46	42
	3-2	5 x 4	7	158	Large halves	..	..
	2-2	7 x 7	6	168	Large halves—sel- dom used	..	..
2 1/2	2-2	7 x 6	6	156	Small three-quarters	45	42
	2-2	6 x 6	6	144	Medium three- quarters	45	42
						45	42
	2-2	6 x 5	6	132	Large three-quarters	45	42
	2-2	5 x 5	6	120	Large three-quarters	..	..
3	2-2	5 x 4	6	108	Small to medium	..	..
	2-1	7 x 7	5	105	Flat shapes	..	..
	2-1	7 x 6	5	98	Flat shapes	..	..
	2-1	6 x 6	5	90	Large 3-in.	..	..
3 1/2	2-1	6 x 5	5	83	.. .. .	..	..
	2-1	5 x 5	5	75	.. .. .	..	..
	2-1	5 x 4	5	68	.. .. .	..	..
	2-1	4 x 4	5	60	.. .. .	..	..
3 1/2	2-1	4 x 3	5	53	.. .. .	..	..

Packing Pears for Export

THE MOST IMPORTANT FACTOR in the export of Pears undoubtedly is the stage of maturity at which the fruit is harvested. Errors in harvesting are readily discernible in the Williams Bon Chretien variety, large numbers of which are exported annually. The following hints may help in the elimination of these defects:

The best time to harvest Pears (particularly the W.B.C. variety) is indicated by—

1. The change of the ground color of the skin from dark green to pale green.
2. The changing of the dots or lenticels from a light to a dark or corky appearance.
3. The well filled-out appearance of the Pear.
4. The ease with which the fruit can be separated from the spurs when harvesting.
5. In a Pear ready for harvesting the juice immediately rushes to the surface when a slice is cut from the fruit; if it remains dry the fruit is still immature.

Temperatures. — Pears should remain in cool store at least 48 hours before packing; the temperature should be 29-31 degrees F.

Temperature of the truck before loading should be 50-56 degrees F.

The core temperature of Pears at loading should be 30-35 degrees F.

If these suggestions be followed closely the temperature of the truck upon arrival at the boat should be 40-45

degrees F., with the core temperature of the Pears between 35 and 40 degrees F.

On no account should the temperature of W.B.C. Pears on arrival at the boat for export be more than 45 degrees F.

Chart for Pears in the 8 1/2-in. Standard Pear case (18 inches long, 11 1/2 inches wide, 8 1/2 inches deep—inside measurements).

Approx. Size. Inches.	Pack.	Layer.	Layers.	Total.	Remarks.
2	4-3	7 x 7	5	245	
	4-3	7 x 6	5	228	Small
	4-3	6 x 6	5	210	Medium
	4-3	6 x 5	5	193	Large
2 1/2	3-3	6 x 6	5	180	Small to medium quarters
	3-3	6 x 5	5	165	Medium to large quar- ters
2 1/2	3-3	5 x 5	5	150	Small to medium halves
	3-3	5 x 4	5	135	Medium to large halves
2 1/2	3-3	4 x 4	5	120	Small three-quarters
	3-2	6 x 6	4	120	
	3-2	6 x 5	4	110	
	3-2	5 x 5	4	100	
3	3-2	5 x 4	4	90	Small to medium 3-in.
	3-2	4 x 4	4	80	Medium large 3-in.
3 1/2	3-2	4 x 3	4	70	

The 8½-Inch Standard Pear Case.

The packs shown on this chart embrace long, medium, and short varieties. They have become standardised in the markets of the world. Packs other than these are known in the trade as foreign counts. A bulge of approximately 1½ inches is necessary when packing this case, the net weight of which should not be less than 42 lb.

The sizes shown are approximate, and intended to serve as a guide; they may vary slightly, but this will depend whether long or short types are packed. It is important that the count, and not the size, should be shown on the end of the case.

Correct height is obtained by regulating the tightness of the pack in accordance with the size of the Pears for a given style of pack; therefore, the smallest sizes of the 4-3, 3-3, and 3-2 packs should be packed a little more tightly than usual, while the largest sizes of these packs should be packed a little more loosely than usual.

Specifications of timber required to make the standard Pear case are as follows:—

Ends.—2 pieces, 11½ inches long, 8½ inches wide, ¾ inch thick.

Sides.—2 pieces, 19½ inches long, 8½ inches wide, 5/16 inch thick.

*Tops and bottoms.—4 pieces, 19½ inches long, 5½ inches wide, 3/16 inch thick.

Cleats.—4 pieces, 11½ inches long, ¾ inch wide, ¾ inch thick.

*Tops are also cut ¼ inch longer to allow for the bulge.

Salient Points for Export.

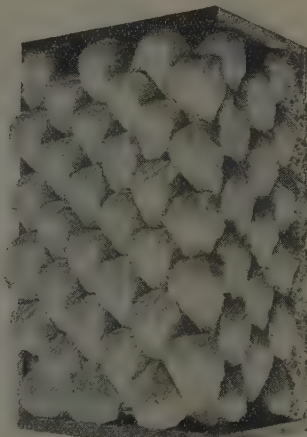
If the lids are in two pieces, keep them as close together as possible to prevent cutting the fruit.

Corrugated cardboards should be used at the top, bottom, and sides of the case when packing.

In all instances, the W.B.C. Pear should be pre-cooled before export.

Wire-tie all cases to prevent breakages and ullage in transit.

Machine grading of Pears can be recommended if the operation is carried out as soon as the fruit is harvested and before cool storage. On no account should light skin varieties be machine graded while excessively cold.

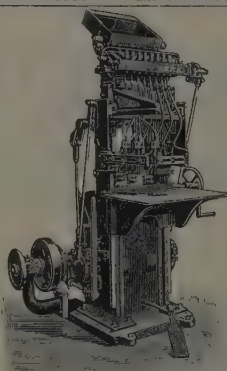


W.B.C. Pears packed for export in the 8½ inch "Standard" Pear Case.

PACKING CHART FOR PEARS IN THE "LONG" BUSHEL CASE.

(26 inches x 6 inches x 14½ inches, inside measurements, clear of the division.)

Approximate Size.	Pack	Layer.	Layers.	Total.	Remarks.
Inches.					
Medium and Short Types, Such as Packham's, Josephine, Etc.					
2	2-2	4 x 3	8	224	Normal pack.
2½	2-1	5 x 4	8	216	Normal pack.
2½	2-1	4 x 4	8	192	Normal pack.
2½	2-1	4 x 3	8	168	Normal pack.
2½	2-1	3 x 3	8	144	Pack more loosely than usual.
2½	2-1	3 x 3	7	126	Normal pack.
2½	2-1	3 x 2	7	106	Pack more loosely than usual.
2½	2-1	3 x 2	6	90	Normal pack. If Howell, etc., mix 106 and 90 and pack as 96.
3	1-1	4 x 4	6	96	Stalks face centre of case.
3½	1-1	4 x 3	6	84	Stalks face centre of case.

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Long Types, Such as Beurre Bosc,, Etc.

2½	2-1	4 x 4	8	192	Normal pack.
2½	2-1	4 x 3	8	168	Normal pack.
2½	2-1	3 x 3	8	144	Normal pack.
2½	2-1	3 x 2	8	120	Pack more loosely than usual.
2½	2-1	3 x 2	7	106	Pack more tightly than usual.
2½	1-1	4 x 3	7	98	Stalks face centre of case.
2½	1-1	4 x 3	6	84	Stalks face centre of case.
3	1-1	3 x 3	6	72	Stalks face centre of case.
3½	1-1	3 x 2	6	60	Stalks face centre of case.

Specifications of timber required to make the "Long" Bushel case are as follow:—

Ends and centre.—3 pieces, 14½ inches long, 6 inches wide, 11/16 inch thick.

Sides.—6 pieces, 28 1/16 inches long, 4 11/16 inches wide, ½ inch thick.

Lids and bottoms.—2 pieces, 28 1/16 inches long, 6 inches wide, ½ inch thick.

APPLE VARIETIES FOR EXPORT.

Hereunder is given the list of varieties for export in 1935, together with color requirements and abbreviation. "ExF." means Extra Fancy, and "F," Fancy; "E.C.," Even Color; "Ex.," Experimental.

Overseas Export Grades for Apples.

Dessert, 2½-2½ inches.

Variety.	Color.		Abbrev.
	Ex. F. %	F. %	
3 Aromatic	50	20	ARO.
1 Cleopatra	E.C.	E.C.	CLEO.
1 Delicious	50	20	DEL.
1 Dougherty	50	20	DHTY.
2 Geeveston Fanny	50	20	G.F.
Ex. F. %		F. %	
1 Newtown Pip	E.C.	E.C.	
2 Ribston Pip	3½	10	R.P.
1 Rokewood	50	20	Roke.
1 Sturmer*	E.C.	E.C.	ST.P.
1 Statesman	30	10	STN.
3 Australian Bty.	50	20	A.B.
Ex White Winter Pearmain .	E.C.	E.C.	W.W.P.
Ex Stayman	30	10	STAY.
Ex Coleman	50	20	CMN.
Ex McIntosh Red	70	35	MCINTOSH RED
Ex Jubilee	50	20	JUB.
Ex King Cole	50	20	K.C.

*Note—Russet Tolerance.

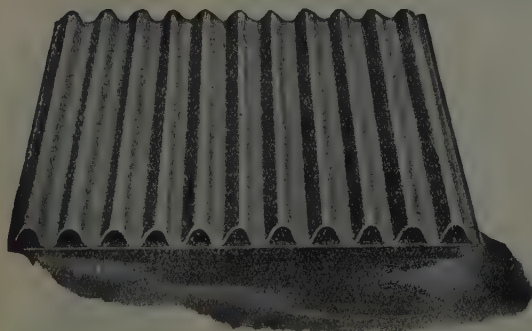
Anti-Bruze Corrugated Fruit Pad

MADE IN TASMANIA

*To obtain highest prices your fruit must arrive
at its destination in perfect condition.*

FULL HEIGHT CORRUGATIONS

CORRECT RESILIENCY



After much research a Corrugated Pad has been produced which is ideal in all respects; namely:— Resilience, Shape, Spacing and Height.

This new ANTI-BRUZE Fruit Pad affords your fruit full protection and enhances its value to the prospective purchaser.

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OBTAINABLE FROM LEADING
DISTRIBUTORS THROUGHOUT
TASMANIA.

FRUIT WORLD ANNUAL.

Dessert, 2-2½ inches.

	Ex.F.%	F%
1 Cox's Orange Pippin ..	30	10

Dessert, 2½-2¾ inches.

2 King Pippin	30	10
1 Crofton	50	20
1 Jonathan	50	20
3 Pomme de Neige	30	10
2 Worcester Pm.	50	20
1 Yates	50	20
2 King David	70	35
2 Scarlet	50	20

Culinary, 2½-3 inches.

1 French Crab	E.C.	E.C.
---------------------	------	------

Culinary, 2½-3 inches.

Variety.	Color.
2 London Pip.	E.C. E.C.
3 Mobbs Codlin	E.C. E.C.
3 Reinette du Canada ..	E.C. E.C.
1 Stewarts	E.C. E.C.
2 Schroeder	E.C. E.C.
Ex Wellington	E.C. E.C.

Culinary, 2½-3½ inches.

1. Alfriston	E.C. E.C.
2 Prince Alfred	30 10

Dual Purpose, 2½-3 inches.

	Ex.F.%	F%	
C.O.P.	2 Alexander	30 10	ALX.
	2 Crow Egg	30 10	C.E.
	2 Duke of Clarence	70 35	D.C.
K.P.	1 Dunns	E.C. E.C.	DUNNS
CROF.	1 Granny Smith	E.C. E.C.	G.S.
JON.	2 Rome Beauty	30 10	R.B.
P.D.N.	2 Nickajack	30 10	N.J.
W.P.M.	2 Tasman's Pride	50 20	T.P.
YATES	2 Stone Pippin	E.C. E.C.	S.P.

Dual Purpose, 2½-3½ inches.

K.D.	1 Democrat	70 35	DEM.
S. PM.	E.C. indicates the contents of a case must be of even color.		

Varieties are numbered to indicate their classification as export Apples.

No. 1 varieties recommended for export.

No. 2 varieties permitted to be exported, but it is not recommended that trees be converted to these varieties.

No. 3 varieties permitted to be exported for next two years, but any of these may be subsequently deleted from the export list.

Ex., Experimental—Varieties permitted to be exported in 1935 in an experimental way, and to be the subject of reports by departmental officials and the fruit trade abroad.

ALF.	It is not recommended that varieties be worked over to		
P.A.	Jonathan.		



Packing Pears and Plums for export at a Victorian Packing Shed.

GRAPES FOR EXPORT.

Revised Packing Hints.

Grapes should be Promptly Cooled and Packed in Air-tight Cases.

(By Basil Krone, Fruit Packing Instructor, Victorian Department of Agriculture.)

EACH SEASON the condition of Grapes exported from Victoria is variable. Shipping conditions, wet seasons, etc., are usually blamed.

Year after year the Department of Agriculture exhibits Grapes at the Royal Show six months after being harvested.

It has been found that Grapes keep well either in cork or sulphite wrapping paper and wood-wool. The latter is very much cheaper and cleaner.

Grapes have been harvested at Shepparton during a wet season and exhibited at the Shepparton Show seven months later.

Grapes have been in a chamber at the Government Cool Stores for nearly three weeks without the machinery working, and were on display at the Royal Show later.

Inspection of Grapes exported from Victoria shows that:—

- (a) Insufficient or delayed cool storage occurred in the early stages. This is disastrous.
- (b) Boxes are lined with paper to prevent cork spilling through cracks. This is useless, because the cracks permit the CO₂ (a natural preservative gas given off by the fruit) to escape.

- (c) Overtight packing, which damages the fruit at the pedicel, and causes a minute oozing of juice at this part which later causes the well-known "wet" in Grapes.

To overcome these troubles, the following salient points are recommended:—

- (a) Thick boards for cases. Minimum thickness of laths 3/8 inch.
- (b) Close fitting boards (tongue and groove; clamped together for preference).
- (c) Cases must have cleats to permit free circulation of air between them.
- (d) Harvested at the correct stage of maturity (minimum of 10 degrees Baumé).
- (e) The Grapes must cool down before packing. Reduced to 34-35 degrees F. if possible.
- (f) Immediate cool storage after packing at 32 degrees F.
- (g) Second growth fruit must not be used.

These points, if rigidly adhered to, should reduce the present annual loss by at least fifty per cent.

IMPORTANT POINTS FOR APPLE PACKERS.

(1) The second and alternate layers in each pack must not rest directly on top of the fruit beneath, but in the spaces. Keep each Apple over the pocket formed by the layer beneath.

(2) The size of the pockets or spaces regulates the height of the fruit. The height of the fruit is controlled by the tightness of the layer.

(3) Correct placing of the first layer is the most important factor in securing correct height.

(4) All Apples should be placed on the cheek, producing an even, but not necessarily a level, surface on each layer.

(5) No two fruits rest directly on top of each other in any direction.

(6) Sizing and packing should be treated as two separate operations.

(7) The diameter of an Apple is measured from cheek to cheek, not from stem to eye.

(8) If your cleats show a tendency to split when nailing, drop them into a bucket of water for a few minutes.

(9) Lining paper is not required in cases intended for export. It prevents free circulation of air.

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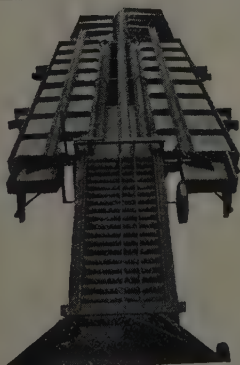
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We design and Install Plants to Store from 500 Cases upwards



A TYPICAL
6,000 CASE
FRUIT STORE
SUITABLE FOR
INDIVIDUAL
ORCHARDISTS.

The above picture is typical of the type of cool store erected on the property of individual orchardists. This type of cool store ranges in capacity from 1,000 to 15,000 cases. Where such orchard cool store plants have been installed, the owners have proved their value. Growers state that savings are effected because of not being compelled, perhaps at an inconvenient time, to cart the fruit over indifferent roads to the district cool store. This by no means discounts the value of the district cool stores, but it demonstrates the desirability under certain circumstances of orchard cool stores being erected in particular localities to suit specific needs.

Small cool stores can be erected on the orchard with a capacity of 5,000 to 10,000 cases, built and equipped for an all-in-figure of less than 6/- per case. An orchard property possessing a cool store enhances its value considerably. Further particulars regarding running costs, etc., will be supplied on application.

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The History and Development of Cool Storage of Fruit in Victoria

FROM AN ENGINEER'S POINT OF VIEW

(By R. Werner).

HAVING BEEN IN TOUCH with fruit storage in Victoria almost from its beginning, some 34 years ago, I thought that this subject—the history and development of cool storage of fruit in Victoria from an engineer's point of view—would be of interest to describe how the cool storage business has developed.

Previous to the first few years of this century, there was some scattered information available in print about fruit preservation by means of refrigeration, and accessible to the grower if he knew where to look for it. Some information had also been gained through shipping overseas comparatively small consignments of Apples, which were carried out fairly satisfactorily. Some other information was drawn from the experience of American growers and fruit merchants. The result of those experiments were occasionally published in the American magazine "Ice and Refrigeration." Unfortunately the conclusions to be drawn from these different sources of information do not always agree with one another, and they are sometimes calculated to confuse rather than to instruct.

With the information available at that time in connection with a Mr. Forster, the manager of the Richmond Ice Works, we decided to put cool storage to a test and procured about 200 cases of Jonathans to start with. To give the experiment every chance of success we bought the Apples from a Mr. Hunter, of Tally Ho, who had some experience in selecting and packing Apples for shipment. Although I was very sanguine about the result in consequence of reading up all the information I could lay my hands on regarding cool storage of fruit, Mr. Forster had his doubts about it and started to sell the first Apples about August by showing the fruit to shopkeepers in Richmond and Swanston-street. The cost of the cases to us was about 5/- per case, and the first cases were sold at 9/- a case, but as the demand for them increased the last of the cases were sold a few months later at 12/6 a case.

The following season some of the shopkeepers bought Apples themselves and placed them into storage at the ice works at the rate of 1½d. per case per week. This suited both parties as it brought in a revenue to the ice works in the winter.

About that time, twenty-five years ago, a Mr. Kitchen, who owned the Toomuc Valley Orchard, at Pakenham, decided to give cool storage a trial after inspecting the fruit stored at the Richmond Ice Works. He built a store in his orchard and installed the first refrigerating plant for cool storage of fruit only.

The growers of Doncaster

naturally got to hear about this venture and were considering the building of a cool store in their district. To secure information they desired to inspect the Toomuc Valley Store, but their request for permission to inspect the Toomuc Valley Store was politely turned down. A

meeting of the Doncaster growers was then arranged. Mr. Lawford, Senr., invited me to attend this meeting, where it was decided to approach the Government for assistance to build a cool store at Doncaster and to interview the Premier, Mr. Bent, on the matter. He was invited to pay a visit to the district, with the result that the first cool store at Doncaster was built and in operation at the beginning of 1905.

Mr. E. Lawford, however, did not approve of this action on the part of the growers, and he decided to build a store of his own of approximately 1,000 cases capacity.

We discussed the matter from all the points of view we could think of, and Mr. Lawford's idea was to have three rooms, two storage rooms and one room for pre-cooling the fruit. The system of cooling was the air circulation with battery coils and fan overhead, but no brine tank. The air was circulated from the battery through the perforated floor, the perforation being obtained by spacing the floorboards of the second floor about ½ in. apart. This second floor was resting on the insulated floor, was built in sections and could be lifted for cleaning. A clearance space of 3 in. between the first and second floor formed the air duct for the floor. Mr. Lawford's small store was finished about the same time as the Government Cool Store at Doncaster, and ready in January, 1905. The result of his first year's experience he gave in a letter of June 4, 1906, which reads as follows:—

The system of cooling at the Government store was practically the same as installed in Mr. Lawford's—forced circulation of air by means of a fan and the air cooler battery overhead, but with the addition of brine circulation over the coils to prevent the accumulation of frost caused by the condensation of moisture freezing on to the coils.

In a comparatively small store, this would not be a serious matter, but in a larger one, where thousands of cases have to be dealt with, this accumulation of frost would seriously reduce the efficiency of the plant towards the end of the season.

Provision can be made and was made in Mr. Lawford's case for such accumulation by spacing the pipes in coils further apart, say not less than 4 in. centres. If brine is used to absorb the moisture given off by the fruit, the pipes can be placed closer together, and consequently a greater amount of piping be placed in the space allowed for the battery.

With the brine battery system the constant absorption of moisture

will dilute the brine to such an extent in the course of time that the low temperature to be maintained in the ammonia coils will cause the brine to freeze on to the coils in thick layers almost in a solid mass, and consequently reduce the efficiency of the coils to a considerable

degree. The way to strengthen the brine is to either add more calcium or concentrate the brine by evaporation of the moisture absorbed. When calcium was at a price of about £4 per ton, the addition of same in a store up to about 15,000-20,000 cases, was not a serious item, but when the price rose up to £14 and £16 concentration of brine was resorted to, at present the price is still between £9 and £10 per ton.

The

system of air circulation

in the then Government Store was different from Lawford's store. The inlet and outlet ducts were placed in the ceiling at opposite end of room. The drawback in this case was that the cold in-going air at a temperature of some degrees below freezing point at times froze the top cases of fruit. Cases directly under the ducts had to be covered with bags to prevent the freezing of fruit. If the temperature of air entering the room was not sufficiently low the outgoing air after passing through the cases stacked in the room and absorbing the heat from the fruit was at times sufficiently high to cause ripening of some of the fruit at the outlet end.

The building of cool stores with overhead brine battery as well as inlet and outlet ducts at opposite ends on ceiling was favored by the Government Architect, and similar stores were built at Ringwood, Diamond Creek and Burwood East.

After a few years' experience, Mr. Lawford was considering about more storage space, and formed with Mr. Tully and Mr. Petty the

first co-operative store,

consisting of about 15 or 16 shareholders, who each contributed a fixed amount of capital at so much per share, each share representing a storage space of 500 cases.

As the majority of the shareholders had obtained fairly satisfactory results in the then Government Store, three of the rooms had to be built with air inlets at opposite ends, and the fourth room, which was practically all taken up by Mr. Lawford, had the same circulation as in his small store, floor inlet and ceiling outlet.

Although both systems worked fairly satisfactorily, there was room for improvement, which was actually carried out in the construction of the first building of the Orchardists' Cool Store, in Doncaster. Provision was made on each end of the rooms to allow the cold air from the coils to blow directly down past the cases of fruit by leaving a 12 in. space between the first row of cases and the end walls. In this way the cold air did no damage to the fruit by being directed alongside instead of on to the cases. A further improvement was effected by splitting up the quantity of air delivered, letting in about half at the one end and the other half at the middle of the room, both inlets to be returned by the one return duct at the far end of the room to the battery. This improvement suggested itself on account of the long rooms, in this case the rooms were 52 ft. long.

The next improvement

in air distribution was carried out for the first time in the Box Hill Store, and almost in all stores built subsequently by the Public Works Department. This consisted of the original construction of air inlet and outlet ducts in ceiling at opposite ends of rooms, but instead of directing the air intake through a small number of large openings at one end of room, a perforated double ceiling was constructed, the perforation being obtained by spacing the boards of the false or second ceiling a fraction of an inch apart and distributing the cold air as evenly as possible over the whole of chamber. In this way no cold air blast could strike the fruit, but instead a gentle

breeze was spread over the whole of the fruit. The cold air being heavier, settled down evenly over the whole place, absorbing heat where it was given off by the fruit and returning back to the battery to be cooled again.

In every case of forced air circulation in a large room the temperature difference between inlet and outlet may be anything from 2 to 3 degrees up to about 6 or 7 degrees, according to the quantity and temperature of fruit placed in the store. The greater the number of cases and the higher the temperature of the fruit the greater will be the difference of air temperature between in and outlet because the passing of air on its way through the room from one end to the other absorbs the heat given off by the fruit, and it is just this absorbed heat which causes the rise in temperature. The air on its way over the coils in battery gives off this absorbed heat to the cooling coils, its temperature is lowered and re-enters the room at this lower temperature to pick up heat again. It naturally follows that the more surface you expose to the air the more heat can be taken, although no more than is given off by those surfaces. This means that once the fruit is cooled down all the air has to do is to absorb the heat entering the rooms by radiation through the insulated walls, floors and ceiling, through the opening of doors and the small amount of heat generated by the ripening of the fruit. The lower the temperature of the rooms, naturally, the less is due to this cause.

Following the air in its course through the rooms we should give it as much access as possible to all the surfaces we want to cool which means that we should not stack our cases too close if we want to cool our fruit effectually. We need not sacrifice too much space for this purpose, anything from half an inch upwards will do. If a stack of say 500 cases is closely packed with fruit at a temperature of say 60 or 70 degrees, the heat from the fruit in the centre of that stack has a poor chance to be absorbed by the air passing through the chamber, it can leave that fruit only very slowly, too slow probably to prevent the ripening of some of it and consequently that fruit will not keep. With some fruit, say a well-keeping variety of Apples, the matter of circulation may not be so important as with early variety Pears, but it is one of the precautions which should not be neglected with any fruit.

If you realise that it takes about three days in an ordinary kero. case to cool fruit from about 70 degrees to

about 32 degrees

placed on the floor of a cool room all sides practically exposed to the room temperature, how long would it take to cool a stack of a few hundred cases where the air cannot get at the fruit to remove the heat effectively, at all events not until a certain amount of damage is done.

You will notice that the development of cool storage of fruit was principally on the requirements of large stores for whole districts because the refrigerating plant required the attention of a competent engineer and the average grower could not be bothered with the running of a plant. Although there is no particular art and science required to run a refrigerating plant or an oil engine of a comparatively small size, yet when it came to a larger plant for a larger store, the service of a competent man could not be done without, and he could give his undivided attention to the running of the machinery.

The system of cooling adopted for large stores was the battery system with brine circulation over coils, because the work of the whole of the refrigeration available could be directed either to any single room or on all the rooms together if required, and the supply of cold air regulated according to the requirements of each room. The extra

work involved in looking after the proper density of the brine and keeping the coil surfaces free of frost accumulation could easily be attended to by the engineer in charge of store besides his other duties of keeping all the machinery in good working order.

After the success obtained in the co-operative store, some growers who were living some distance away from the co-operative stores, looked for more convenience in the handling of their fruit, and had the idea of building a store to suit their own requirements in their orchards after the manner of Mr. Lawford.

The time and attention to be given to the machinery could easily be spared, and the actual cost of running was reduced by the saving of wages in doing away with a special attendant.

To minimise the work connected with the running of the refrigerating plant the battery system with fan and brine was departed from and the direct expansion system substituted.

In this system the cooling coils are placed direct into the rooms to be cooled, for preference on the walls, as the placing of coils on ceiling will cause the moisture, and placing them in any other position would interfere with the stacking of the fruit. By placing the coils on the walls with gutters underneath to catch the drips, a natural circulation of air is created in this way. The air nearest to the coils is naturally the coolest in rooms is by being increased in density and heavier than the air in other parts. On account of this peculiarity it naturally drops, is replaced by warmer air from above, and this circulation goes on continuously as long as there is difference between the temperature of the coils and the air in the room. The greater the difference of temperature the greater the circulation.

This circulation created by the temperature difference will cause a steady flow of air in the room, the cooler air coming into contact with the comparatively warm surfaces of the cases and the fruit absorbs a certain amount of heat, and in turn rises again, forming a regular circuit. This circulation may be imperceptible to the casual observer, but it is there all the same, providing always the cases are not stacked too closely together so that the cooled air from the coils can find its way between them to pick up and absorb the heat from the cases to be cooled.

The cases should be stacked about 9 to 12 inches from the walls well clear of the coils, and if there is a slight space of only about $\frac{1}{4}$ in. between each case, sufficient circulation can be obtained to prevent the fruit from freezing. However, if the cases are stacked as close as possible, the cold air from the coils cannot get away readily and through the stagnation caused, fruit may be damaged by freezing it. Some Apples and Pears for that matter may be subjected to fairly low temperatures without doing any damage, and I have seen the Yates variety in temporary temperatures of 25 and 26 without being harmed. When I say "temporary," I mean for a number of hours say 4, 5 or 6 hours. I have no doubt that if exposed to that low temperature continuously serious damage might be done.

The running of the refrigerating plant in a cool store is usually done intermittently except at the beginning of the season, when the filling of the stores may be done that quickly as requiring the running of the plant continuously for days at a time. When this is necessary there is rarely any fear of the temperatures getting too low. The attention of the man in charge will prevent this. The intermittent working will take place when all the fruit is practically cooled down, and no fresh fruit is being put in. As all the heat required to be taken out

of the fruit has been disposed of it is only necessary to remove the small amount of heat which enters through the insulated walls the opening of doors and probably the little which may be caused by the ripening of some of the fruit. A few hours daily running will be sufficient to keep a fairly even temperature until all the fruit is disposed of.

Some of you will have noticed that it is fairly easy to keep an even temperature when the rooms are stacked full of fruit and that the temperature fluctuates more when there is not much left in the store. The reason for this is that the heat entering through the walls, floors and ceiling as well as the opening of doors, raises the temperature of the air in the chamber comparatively quickly after stopping the machine as the specific heat of air is very much less than the specific heat of fruit and cases. This means that a certain number of heat units entering the room is sufficient to show a higher number of degrees on the thermometer than it would show on the fruit in cases, so if this is not left for more than a day it would not make any appreciable difference on the temperature on the fruit in the cases.

For the same reason the temperature in a store filled with fruit will not show the fluctuation, as the heat entering through walls, etc., is easily absorbed by the fruit and would not affect the temperature of air to the same extent and consequently the heat leakage taking place is not so noticeably recorded on the thermometer.

Another matter to which I might refer to is the relative efficiency of dry air circulation and direct expansion. Some of those that have tried both, that is those of the growers who have stored fruit under the two systems, have formed definite opinions in favor of the one or the other. From my point of view, fruit can be stored successfully by either system and with proper care and attention there is no reason whatever why this is not done. All the experience of cool storage of fruit up to the present has proved it, and although the direct expansion system has been introduced principally for small stores for the convenience of running in the absence of the brine tanks pump and fan, at the same time it must not be overlooked that a certain amount of space has to be sacrificed in the chamber for the coils and also that a certain amount of moisture is unavoidable. This, of course, may be an advantage regarding the fruit stored as it may prevent a certain amount of wilt, which is sometimes noticed on fruit stored on the dry air circulation system and the experiences of growers who have stores of their own cooled by direct expansion, seem to think so.

One advantage of the direct expansion cooled rooms is that the air in each room is not intermingled with the air of any other room. In a number of rooms cooled by the battery system, the air of all rooms in the building cooled by this system is practically mixed right through the building and the odors of different fruit are intermingled to such an extent at times that some of the Pears have a pronounced Apple flavor as all the flavor of the Apples is not taken up by the brine, which it will do to a certain extent.

Any highly flavored fruit, as Oranges, Lemons, Peaches and Apricots, should not be stored in the same building with Apples and Pears, where the battery system is installed. All these should be stored in separate rooms, and separate rooms are better cooled by the direct expansion system.

The successful development of the cool storage of fruit up to the present has proved a great boon to the fruit grower, and there is no knowing yet to what it may extend to in the future.

Australian and New Zealand Fruit Cool Stores

VICTORIA

	Capacity in Cases.
Govt. Cool Stores, Victoria Dock	250,000
Orchardists' Co-op., Doncaster East	116,000
Shepparton Cannery Cool Store	110,000
Harcourt	80,000
Shepparton Fruitgrowers	60,000
Ringwood	50,223
Australasian Jam Co., South Yarra	50,000
Ardmona	50,000
West Doncaster	40,000
Wantirna	39,200
Blackburn	38,920
Tyabb	36,400
Hastings Cool Stores	34,000
Hurstbridge	32,000
Burwood East	32,000
East Doncaster	31,500
Mount Waverley	30,420
Sennitt & Son Pty. Ltd.	30,000
Red Hill	29,000
Somerville Cool Stores	22,000
Valley View Orchards, N. & I. Woolf, Pakenham Upper	24,000
Croydon Cool Stores	21,056
W. Angliss & Co. Pty. Ltd.	20,000
Templestowe Cool Stores	20,000
Box Hill Ice and Cold Storage Pty. Ltd.	20,000
Diamond Creek	17,800
J. Brunning & Sons, Somerville	17,500
Lawford, E., Doncaster	17,000
Graceburn Valley, Healesville	17,000
Maryborough	16,000
Pakenham	15,000
Portland	15,000
Narre Warren	15,000
Essendon Ice Works	14,000
Two Bays Nurseries & Orchard Pty. Ltd.	14,000
Richmond Ice Works	11,000
Apted, George, Arthur's Creek	11,000
Johns, R., Queenstown	11,000
Dobson Bros., Ferntree Gully	10,000
Bendigo Fruitgrowers' Co-op. Association	10,000
Geelong	10,000
Fitzroy Ice Works	10,000
Lipscombe, W., Croydon	10,000
Elinora Orchards	10,000
Ireland, A. E., Doncaster	9,000
Brunswick	8,000
Australian Ice Works, Ballarat	8,000
Jenkins, Scoresby	7,000
Scott, D., Greensborough	7,000
Tynong (W. C. Thomas & Co.)	7,000
Carpenter, J. D., Hastings	6,500
Burke Bros., Diamond Creek	6,500
Bunyip	6,118
Robinson, T., Scoresby	6,000
Heinz Bros., Ballarat	5,000
Finger, F., Balwyn	5,000
Haysey, R. E., Narre Warren N.	5,000
Corbett, D. J., Doncaster	5,000
Muller, O., Queenstown	5,000
Jenkins, W. R., Doncaster	5,000
Bailey, J. W., Narre Warren	3,800
Shearer, O. J., Nutfield	3,000

Mordialloc Ice Works	3,000
Moore, J. E., Panton Hill	2,500
Clark, T. J., Diamond Creek	2,500
French, Deepdene	2,500
Cobram (P. Rossiter, Citrus Fruit)	2,500
Cool Stores, J. Hanley	2,000
Smith, W. J., Panton Hill	2,000
Kent, Narre Warren	2,000

Grand total 1,653,437

NEW SOUTH WALES

	Capacity. Bushel Cases.
Sydney Cold Stores Ltd., Sydney	30,000
N.S.W. Fresh Food & Ice Co. Ltd., Sydney	16,500
Batlow Packing House & Cool Stores Rural Co-operative Society Ltd., Batlow	65,000
Orchard Ice and Cold Storage Works, Orange	65,000
Central Cold Stores Ltd., Sydney	42,000
David Hyland & Sons Pty. Ltd., Sydney	1,500
Municipal Cold Storage Works, Sydney	25,000
W. E. Oldfield & Sons, Queanbeyan	2,500
Orange Fruitgrowers' Co-op. Cool Stores Ltd., Orange	27,000
Werrima Orchard Cool Stores, Wingello	8,000
Young Cool Stores Rural Co-op. Society Ltd., Young	10,000
Griffith Producers' Co-op. Co. Ltd., Griffith	17,000
*Yenda Producers' Co-op. Society Ltd., Yenda	800
Dark's Ice & Cold Stores Ltd., Newcastle	40,000
S. E. Ward, Kentucky	3,100
F. J. Westbury, Kentucky	2,000
H. Freame, Kentucky	2,100
Co-op. Cool Stores, Kentucky	11,000
A. J. Arnot, Batlow	7,000
Wallace & Co., Wagga	5,000
Leeton Cannery	30,000

*Used for pre-cooling purposes.

SOUTH AUSTRALIA

Producers' Cold Stores Ltd., Adelaide	100,000
Metropolitan and Export Abattoirs Board, Port Adelaide	100,000
S.A. Cold Stores, Hilton	60,000
Govt. Produce Dept., Light-square, Adelaide	30,000
Balhannah Cold Stores Ltd.	17,000
Cudlee Creek Co-op. Society Ltd.	16,000
Gumeracha Fruitgrowers' Co-op. Society Ltd.	16,000
*Blackwood Cold Stores, Blackwood	16,000
Lenswood Cool Stores	12,000
Heysen, O., & Son, Adelaide	12,000
Angas Park Preserving Co.	8,000
S.A. Fruitgrowers' Co-op. Society, Nuriootpa	7,000
Redden & Sons, W. J., Verdun	6,000
Mattiske, J. W., Angaston	3,000
Norsworthy, A., Williamstown	3,000
Redden & Sons, W. J., Cudlee Creek	3,000
Kelsey, R., Balhannah	3,000

*Burnt down but will probably rebuild with in three months.

WESTERN AUSTRALIA.

Westralian Farmers' Ltd.	Fremantle, Albany & Bridgetown
Illawarra Orchard Co.	Karragullen
Mt. Barker Cold Storage Co.	Mount Barker
Bridgetown Cool Stores	Bridgetown
Western Ice Company	Perth and Fremantle
Perth Ice Works	Perth
Bantock's Ltd.	Subiaco
Baker Bros.	East Fremantle
W. A. Meat Export Co.	Robb's Jetty
Macfarlane & Co.	Perth

TASMANIA

	Bushels.
H. Jones and Co., Hobart	300,000
Beauty Point Cool Stores	48,000
Moonah Cool Stores, Hobart	36,000
Bender and Co., Launceston	30,000
Lilydale Cool Stores	20,000
Cygnat Cool Stores	40,000
Huonville Cool Stores	60,000
Port Huon Fruit Growers' Association Cool Store	120,000
Huon Deep Water Cool Stores	50,000
Private Cool Stores	24,000
Walpole, Devonport	10,000
Total	738,000

NEW ZEALAND.

	Storage Capacity. Bushel Cases.	System of Cooling.
Auckland Farmers' Freezing Co., Auckland	150,000	Air circulation
Radley & Co., Auckland	10,000	Wet battery
Turners and Growers Ltd., ...	25,000	Dry
Westfield Freezing Co.	35,000	Dry
Gisborne Sheepfarmers' Frozen Meat Co., Gisborne	20,000	—
Hawes Bay Fruitgrowers Ltd., ...	25,000	Dry
C. H. Slater Ltd., Hastings	32,000	Wet
Hastings Manfg. Co., Hastings	25,000	Dry
Elite Bacon, Ice & Cool Storage Co., Hastings	16,500	Dry
H. G. Apsey & Co., Hastings	7,000	Wet
W. Sisson, Hastings	1,100	Dry
J. H. Heimann, Havelock North	7,000	Dry
J. Milne, Havelock North	6,000	Dry
E. J. R. Milne, Pukahu, Havelock North	6,000	Direct expansion
F. G. W. Frost, Havelock North	3,000	Dry
W. K. McMiken, Hamilton	2,500	Direct expnsn.
Webster Bros., New Plymouth	3,000	—
Hawera Cool Stores, Hawera	2,300	—
Manawatu Farmers' Freezing & Bacon Co. Ltd.	2,500	—
W. A. Tate, Greytown	9,000	Wet
Harbor Board Cool Store, Wellington	128,000	Dry
Frozen Products Ltd., Wellington	35,000	Brine pipe
Co-op. Dairy Freezing Co. Ltd., Wellington	100,000	Dry
Maitland Cool Store, Nelson	6,000	Dry
Nelson Freezing Co., Stoke, Nelson	40,000	Dry

Motueka Cool Stores, Motueka, Canterbury Orchardists' Co-op. Ltd., Christchurch	40,000	Wet
Christchurch Fruit & Produce Co., Christchurch	20,000	Dry
Papanui Cool Stores Ltd., Papanui, Christchurch	8,000	—
N.Z. Farmers' Co-op. Assn. Ltd., Christchurch	35,000	—
F. Sisson, Papanui, Christchurch	3,500	—
E. Sisson, Papanui, Christchurch	26,000	Dry
Wardell Bros., Christchurch	2,000	Dry
Tonkin & Co., Dunedin	2,500	—
Crystal Ice Co., Dunedin	2,500	Dry
H. Turner, Ettrick, Otago	5,000	Wet
G. C. McMurtry, Brightwater, ...	4,500	Wet
	1,200	Direct expnsn.

WIRE STRAPPING OF CASES.

We have pleasure in drawing the attention of all large packing houses in the dried fruit, canning industries, etc., to an electrically driven automatic Wire Strapping Machine, which is now being marketed by Python Wire Strapping Pty. Ltd. This machine embodies all the salient features of their hand-automatic machine, with its positive action and simple mechanism, and is the only small power machine for the wire strapping of cases on the world's market. The means of tensioning allows any tension to be made up to the breaking strain of the wire by simply turning a wing-nut, which instantly changes the tension to a greater or lesser degree as required. The desired tension having been arrived at, every tie is uniform, irrespective of who operates the machine. This allows the use of the full tensile strength of the wire, and assures an even distribution of the weight on each wire, thus giving the perfect pack.

The Python Company first marketed a machine tying a triple twist, which proved the ideal machine for large and heavy packing, but soon realised the need for a faster machine for all classes of light packing. They then produced a machine tying a double twist, which is 60 per cent. faster than the triple twist, and which is giving universal satisfaction in all classes of industry. Realising the necessity for the reduction of labor costs, combined with increased speed in large packing houses, they then turned their attention to the production of a small power machine, in which they have been equally successful. The machine that is now perfected gives a speed and efficiency which has never before been obtained by any other wire strapping machine.

A big feature of the automatic electric machine is its simplicity of operation, not requiring an expert operator, in fact, a junior can operate it successfully immediately, there being no physical exhaustion at the end of a busy day, and the present expectation of a full day's tying can be accomplished, with the new machine, in less than half the time.

Python Wire Strapping Pty. Ltd. have capitalised at £50,000, and have as directors the following gentlemen:—Chairman, Messrs. W. H. Swanton (director of Wm. Crosby & Co. Ltd.); H. W. Cox, Managing Director; E. J. Rigby (late managing director of Austral Otis), C. D. Wallace (director of Gardner Waern & Co. Pty. Ltd.), C. S. Cunningham and T. H. Boyd (directors of Bearing Service Co. of Aust. Pty. Ltd.), and W. D. Watson (Consulting Engineer).

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Only One Quality———THE BEST

OUR PRODUCTS INCLUDE:

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All Varieties

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Tomato Sauce

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All Varieties

SPECIALITIES:

Tomato, Asparagus, Vegetable, Celery—SOUPS

Canned Prunes — — — Canned Spaghetti

WE ARE EXPORTERS OF JAMS, CANNED FRUITS AND TOMATO SAUCE
TO ALL PARTS OF THE WORLD.

Australasian Jam Co. Pty. Ltd.

1 Garden Street, South Yarra, Vic.

THE CANNED FRUITS INDUSTRY

Growth of Production and Export Trade

Every year more Australian-canned fruits and vegetables are being consumed, both in the Commonwealth and abroad. Amongst several factors contributing to this fact are two outstanding developments. Firstly, the growing habit of consumers all over the world to accept properly canned foods as equal with fresh foods, and in some cases far superior; and, secondly, the higher standard of quality now being put into Australian canned goods. These two main factors are responsible for the gradual and consistent increase in the canning industry in Australia, and allows her to compete more equally with other canning countries, especially America, in certain lines which were almost monopolised previously by that country.

Australia's soil, climatic conditions and versatility of production enable her to produce the choicest of fruits suitable for canning, and her improvement in the hygienic processing of carefully selected fruits is winning for her a name for high grade products, so much so that the industry is growing appreciably. The growth of production has far outgrown the domestic requirements, and export trade has become a necessary part of the canning organisation.

1934 Season.

Following the record pack of 1933, when after providing for domestic requirements, it was found that a million and a quarter cases would be available for export to the United Kingdom; canners met and decided to voluntarily restrict the respective packs of Apricots and Pears to the quantity of the 1933 pack, and Peaches to 50 per cent. of the 1933 pack. Circumstances, however, necessitated the total production for the year being over a million dozen tins below that of 1933. Eighty-three per cent. of the total pack processed under the supervision of department inspectors, and passed by them as being up to export standards, were exported.

Home consumption increased in 1934 considerably, when 1,268,748 dozen 30-oz. tins were distributed, as compared with 887,997 dozen tins in 1932, suggesting, as stated above, that consumers are learning to appreciate properly processed fruits as part of their usual diet.

Production.

Figures released by the Canned Fruits Control Board covering the years between 1926 and 1934 show that during that period, whilst the canning of Peaches increased only slightly, that of Apricots and Pears almost doubled. Expressed in dozens of 30-oz. tins (or equivalent), 1926 produced as follows: Apricots, 271,350; Peaches, 1,517,998; Pears, 458,000; whereas, in 1934 there were produced—Apricots, 458,361; Peaches, 1,598,313 and Pears, 798,000 respectively. Of these Victoria produced by far the greatest quantities in each item.

These figures, however, were far below those recorded in 1933, when no fewer than 4,073,358 dozens were produced. This decrease is accounted for partly by a voluntary arrangement of canners to limit production, partly owing to late varieties of Peaches, particularly in Victoria, being seriously affected by brown rot and Oriental peach moth, reducing the quantities available for canning.

Export Trade.

Similarly to production, the volume of canned fruits exported has risen consistently since 1926. Expressed in cases, each of two dozen 30-oz. tins (or equivalent), the following quantities of canned Apricots, Peaches and Pears have been shipped abroad:—

1926	295,663
1927	140,147
1928	537,161
1929	527,099
1930	765,639
1931	797,839
1932	648,521
1933	726,060
1934	1,519,774

By far the greatest quantity has been sent to the United Kingdom (658,616), with New Zealand (22,543), the East (21,847), Canada (19,803) and miscellaneous (3,251) in that order during 1933.

It is interesting to note that shipments to Eastern countries included thirteen different markets, composed of India, Ceylon, China, French Indo-China, Japan, Malay States and Siam, Burma, Dutch East Indies, Egypt and Arabia, French Somaliland, British East Africa, Portuguese East Africa, and the Philippine Islands, with a total volume of 21,847 cases in 1933. It is of further interest to note that although the total shipments during the 1933 season amounted to 726,060 cases, the figures for 1934 (from January 1 to November 30) totalled 1,519,774 cases of two dozen tins, made up as follows:—30-oz., 1,123,102 cases; 21-oz., 84,340 cases, and 16-oz., 312,332 cases, showing that exports during last season more than doubled those for the previous year.

New Zealand.

The decline in the export of canned fruits to New Zealand during 1932 and 1933 is attributed to the development of canning in that country and to the high duty on canned fruits from Australia. In 1934, however, we shipped 20,749 cases to New Zealand, but this was owing to a partial failure of their crops and cannot be relied upon as an indication of returning trade in this connection.

Canada.

In 1933 Australia shipped to Canada 19,804 cases of canned fruits, 6,610 cases below 1932, but the 1932 pack remained unsold by 80,000 cases, which affected the 1933 clearance badly. During the first six months of 1934 shipments to Canada totalled 27,263, as against the same period in 1933, of 3,285 cases. Canada has largely developed her own canning industry in recent years and now virtually excludes competition from U.S.A. packers by the imposition of a high tariff against them. As an indication of the development of canning in Canada, it is stated that in 1929, 90,755 cases of canned Peaches were produced, whilst in 1932 248,911 cases were produced, showing that Canada is alive to the necessity for processing her own fruit.

The Eastern Trade.

In 1932 a record of 22,551 cases was made in shipments of canned fruits to the Eastern markets; this quantity

was again almost reached in 1933 with 21,847 cases. Although returns for 1934 are only available up to June, they show that 8,682 cases had been shipped, and it was anticipated that shipments for 1934 would be about the same as in the 1933 season.

Should the Commonwealth Government give effect to its stated intention of appointing trade commissioners in Eastern countries it must necessarily mean an increase in the sales of canned fruits. Visitors to all Eastern ports are emphatic that markets exist for Australian canned foods in most of the Eastern small countries.

Pineapples.

Queensland, being our own Pineapple producer, in commercial quantities, is also the home of the canned Pineapple. Up until 1929 Australia consumed the whole of the canned Pineapples packed in Queensland, but with improved methods, greater production and also due to the canning industry developing so rapidly in Victoria, an outlet had to be found for the surplus production of Queensland.

This was difficult to find, because of the competition from the already well-established Malaya Pineapple trade, and the trade Malaya was already doing with the United Kingdom and with Canada.

Trade with Canada was facilitated in 1931 by the Canada-Australia Treaty, but the Ottawa Agreement of 1932 rather lessened the advantages being extended to Australia. Australia now has only a limited Canadian market, and a limited London market, since about 93 per cent. of Great Britain's requirements come from the Malay States. New Zealand also obtains the bulk of her Pineapple supplies from British Malaya. Up until 1933, when the Australian-New Zealand Trade Agreement was signed, Australian canned Pineapples were charged a duty of 35 per cent. ad valorem, while the Malay products only paid

25 per cent., and even now, with the duty reduced to 25%, the advantage is with the Malaya merchant, since duty is calculated on domestic values.

No figures are obtainable for years prior to 1930, but each year since that date both the production and export of Pineapples have increased rapidly, as the following report shows. The figures quoted are for dozen tins of 30-oz. (or equivalent):—

	Production.	Export.
1930	334,130	22,096
1931	216,699	113,920
1932	365,755	124,130
1933	476,524	149,922

Research Work.

With the loss that Victorian Peach growers suffered early in the year through the depredations of the Oriental Peach moth, reflecting upon the canning supplies and indirectly upon the whole fruit industry, the Canned Fruits Control Board enlisted the assistance of the Commonwealth Bank in finance and the Council for Scientific and Industrial Research in research work, so that the Peach moth might be fought or eradicated and a recurrence of heavy losses prevented. The council is still working on investigations and experiments, and it is hoped that an early announcement will be made reporting their findings.

Prospects.

Taking all factors into consideration, the prospects for 1935 are bright, and prices in the United Kingdom should firm. With practically no carry-over the prospects are brighter than they have been for several years. The selling agents showed commendable activity during 1934, and opened up sales in areas hitherto closed to Australian fruits. The reception was such that it is highly probable

The Standard of Excellence



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PEACHES, PEARS, APRICOTS & SLICED PEACHES.

Delicious Full Flavored Jams in 23 Varieties.

Australia's Leading Canned Fruit Packers and Exporters to all parts of the World.

SHEPPARTON FRUIT PRESERVING CO. LTD.

Head Office & Cannery: SHEPPARTON, Vic.
Telephones: Shepparton 123, 125.

Sales Office: 49 King Street, Melbourne.
Telephones: Central 8553, 11579.

that those areas will again require our goods, providing that the quality is maintained, and that competitive prices are quoted. The total sales last year were 100 per cent. above those of 1933, and London reports indicate the prospects of a good selling year.

The crop forecasts are good, with perhaps a slight drop in Apricots owing to hail damage in some of the Goulburn Valley districts. Pears should be about normal, and a large pack of Peaches is at present indicated. As in all forecasts, however, weather conditions are a great factor, and if the moth and brown rot problems do not work unexpected havoc 1935 should be a very satisfactory year and the Australian canning industry have a very successful season.

PRINCIPAL FRUIT CANNERS AND JAM MANUFACTURERS IN AUSTRALIA.

NEW SOUTH WALES—

J. Ambrose Ltd., 714 Rocky Point-road, Kogarah.
L. Cowing, 554 Parramatta-road, Petersham.
A. Davies, 11 May-street, Eastwood.
L. L. Griffith, 43 Rainbow-street, South Kensington.
Holbrooks (A/sia.) Ltd., Danks-street, Waterloo.
Hygienic Jam Co. Ltd., 23 Ivy-street, Darlington.
W. H. Johnson & Co. Ltd., Bruce-street, Waterloo.
H. Jones & Co. (Sydney) Ltd., Darlington, Sydney.
Lackersteen & Co. Ltd., 2 Parramatta-road, Camperdown.
F. C. McMartin & Co., Dean-street, Enfield.
Nestle & Anglo Swiss Condensed Milk Co. (A/sia.) Ltd., Walton-crescent, Abbotsford.
Oakleaf Preserving Co. Ltd., Bridge-road, Stanmore.
Peacock Jam Co. Ltd., Alice-street, Newtown.
Pick-Me-Up Condiment Co. Ltd., Alice-street, Newtown.
Rosella Preserving and Manfg. Co. Ltd., Morley-avenue, Rosebery.
Sherwood's Jams & Preserves, 6a Isabella-street, Balmain.
Tillock & Co. Ltd., Kent and Liverpool-streets, Sydney.
Water Conservation and Irrigation Commission, Raphael-street, Sydney.

VICTORIA—

Ardmona Fruit Products Co-op. Co. Ltd., Mooroopna.
Australasian Jam Co. Pty. Ltd., 1 Garden-street, South Yarra.
Associated Jam Packing Co. Pty. Ltd., 90 Queen-street, Melbourne.
Bendigo Preserving Co. Ltd., Garsed-street, Bendigo.
E. Benton, Elizabeth-street, South Yarra.
E. G. Benton, 303 High-street, St. Kilda.
D. Camm & Sons Pty. Ltd., Monbulk.
R. G. Champ (Mrs.), "Banool," Wandin Yallock.
Clegg & Kemp Pty. Ltd., 115 Stanley-street, West Melbourne.
S. Davis & Son Pty. Ltd., 87 Rupert-street, Collingwood.
Fowler's Pty. Ltd., 253-259 Burwood-road, Hawthorn.
Fruit Growers' Preserving Co. Pty. Ltd., 189a Victoria-street, Ballarat.
Holly Preserving Co., Balmain-street, Richmond.
W. H. Johnson Jams Pty. Ltd., 42 Meaden-street, South Melbourne.
Jones, Miller & Co., Williamson-street, Bendigo.
H. M. Leggo & Co. Ltd., Victoria-crescent, Abbotsford.
Francis Longmore & Co. Ltd., 617 Spencer-street, Melbourne.
MacRobertson Pty. Ltd., Argyle-street, Fitzroy.
Mildura Co-operative Fruit Co. Ltd., Mildura.
Rosella Preserving and Manfg. Co. Ltd., Cremorne Gardens, Richmond.

Shepparton Fruit Preserving Co. Ltd., Shepparton.
Studley Preserving Co. Pty. Ltd., 154-160 Wellington-street, Collingwood.
H. Taylor Aerated Waters Pty. Ltd., 426 Rae-street, Nth. Fitzroy.
H. S. K. Ward Pty. Ltd., Spencer-street, Melbourne.
Henry Williams & Sons Pty. Ltd., Heidelberg-road, Alphonston.

QUEENSLAND—

F. G. Butt & Sons, Murphy-road, Zillmere.
P. Elms, Nott-street, South Brisbane.
John Fischle & Sons, Bald Hills, Queensland.
J. Hargreaves & Sons Ltd., Manly, Queensland.
Mono Tropical Fruits Ltd., P.O. Box 101, Townsville.
Summerland Fruit Preserving Co. Ltd., May-street, Hilton.
Sumner Preserving Co., Flower-street, Nundah.
Tassell Products, Montague-road, Hill End, South Brisbane.
Victoria Cross Manfg. Co. Ltd., Woollongabba, South Brisbane.

SOUTH AUSTRALIA—

Blackwood Cold Stores Ltd., Blackwood.
J. Brooker & Sons, Port-road, Croydon.
F. Humphris & Sons Ltd., Carrington-street, Adelaide.
H. Jones & Co. (Adelaide) Ltd., Keswick.
Geo. McEwin & Son Ltd., 27 Grenfell-street, Adelaide.
Robson Jarvis & Co., Hectorville.
Rosella Preserving and Manfg. Co. Ltd., Kent Town.
South Australian Fruitgrowers' Co-operative Society Ltd., Payneham-road, St. Peters.

WESTERN AUSTRALIA—

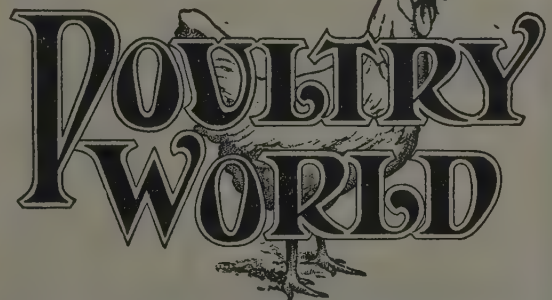
Crystal Jam Co. Ltd., Railway-parade, East Cannington.
George A. McKim (Orchard Peel Co.), Edward-street, Gosnells.
Plaistowe & Co. Ltd., 155 Havelock-street, Leederville, Perth.
H. Rayner & Sons Ltd., 90 Railway-parade, West Perth.
R. S. D. & Perth Vinegar Brewery, 567 Newcastle-street, Perth.

TASMANIA—

H. Jones & Co. Pty. Ltd., Old Wharf, Hobart.
Tasmanian Rosella Preserving Co. Ltd., Hobart.
J. G. Turner Pty. Ltd., Morrison-street, Hobart.
Port Huon Fruitgrowers' Co-op. Association Ltd., Davey-street, Hobart.

.. READ ..

The Australasian



Box 1944, G.P.O., Melbourne

PLANTING FRUIT TREES

Soil Preparation

::

Varieties for Planting, etc.

Preparing the Soil.

Break up the soil to the greatest possible depth, with a big team. If this work is carried out before the fence is erected, the whole area can be broken up. If the soil is left in a state of fallow from one winter to the next before planting is carried out, fruit trees will thrive better than if put into the fresh, rough soil. After securely fencing against stock and vermin, proceed to lay out the rows. The first row should be not less than 20 ft. from the fence. This distance permits of the easy turning of the team when cultivating.

Trees should be planted not less than 20 feet apart. At this spacing 100 trees to the acre can be planted. After marking out the places for the trees—either on the square or diagonal system—proceed to dig the holes. Each should be 3 feet to 4 feet square. Throw on one side the loamy surface soil. Clean out the hole to the depth of a long digging fork. Proceed to break up the bottom soil to the greatest possible depth, care being taken to keep the sub-soil in the bottom.

As the surface soil is being replaced, break the sides of the hole down, thus preventing the formation of a tank-like hole, which would prevent the natural spread of the roots. Before planting each tree, roots that are too long, and others that are broken, should be cut back.

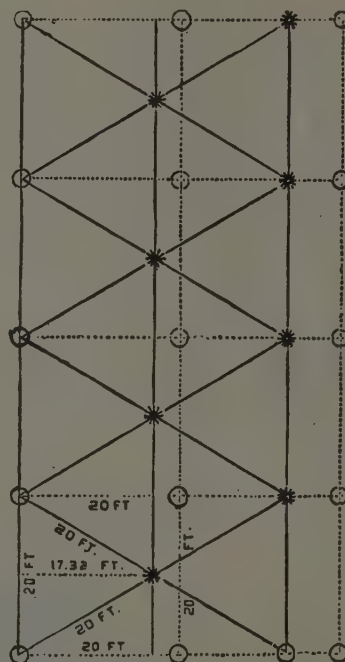
The roots should be spread out in the prepared hole in a natural manner. Care must be taken to plant the tree a little lower than it stood in the nursery row; when the soil settles, the height will be right. Tread around the tree carefully, firming the soil. If the weather is dry at planting time, give a can of water.

The best time to plant fruit trees in the north is June. Late July and August planting, particularly in the drier districts, too often means either failure, or poor success. It must be remembered that fruit trees, in common with most other trees, start into growth in their root systems some weeks before any top growth becomes apparent.

If the site is too exposed to hot winds in summer and cold, driving rain storms in winter, any attempt at fruit growing under such conditions should be abandoned. A comparatively sheltered site should be selected.

The use of explosives in the preparation of land for planting out commercial orchards has been adopted with

considerable success in many districts. Much limestone country has been planted to stone fruits, where the holes have been blown out with agricultural dynamite, and the subsoil broken up to three feet in depth. Fruit trees so planted have stood up to the past five years of drought



in a remarkable manner. If land of a similar type found around some farm homesteads were treated in like manner—even using two plugs of explosives in each hole—success would attend the planting of fruit trees of a suitable type, and the expense would not be prohibitive.

Citrus Trees Bud Selected

Strong, Healthy and True to Name, worked on ORANGE, TRIFOLIATA and LEMON
Stocks to suit the different soils.

Our SUMMER FRUIT and ROSE PLANTS are sturdy and well rooted and we have these in large quantity.
Expert Packing. Descriptive Catalogue free on application.

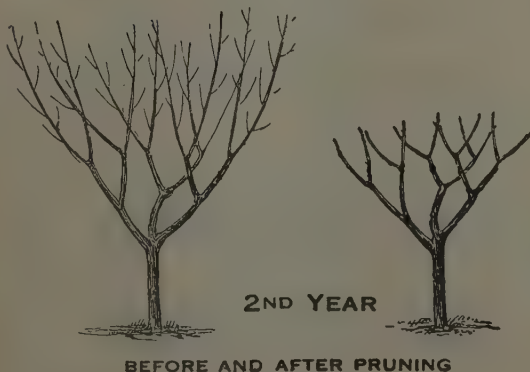
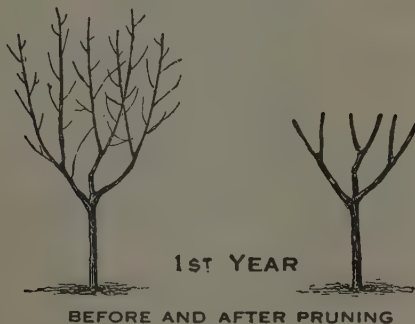
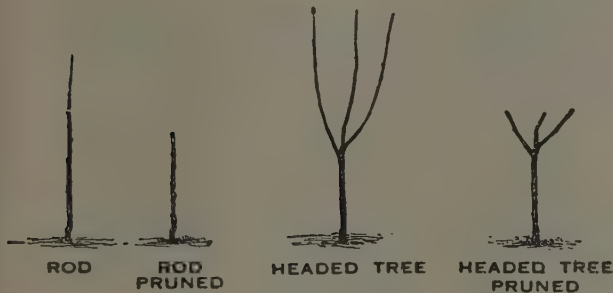
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L. P. ROSEN & SON, "Fernhill Nurseries", Pennant Hills Road, Carlingford, N.S.W.
Established 1901

Planting Deciduous Trees.

Land which it is intended to plant to deciduous fruit trees will already have been ploughed and subsoiled, and will now probably only need working with harrows and cultivators to complete its preparation, though a cross-ploughing may be advisable first in some cases. A cloddy surface should be aimed at, so that the final working should be given with a deep-stirring implement that will bring the clods to the top and sift the finer soil particles underneath.

A careful examination should be made of the trees on their arrival from the nursery, and any diseased, insect-infested, or ill-developed specimens rejected. Those selected for planting should be placed in a trench with their roots covered with moist soil, and removed as required for planting out.

**Fruit Trees**

...AND...

Fruit Tree Stocks

SPLENDID STOCK OF ALL LEADING VARIETIES AVAILABLE.

Apples worked on Northern Spy, also leading varieties on Seedling Stock, and whole root worked; these are giving splendid results.

Apricots worked on Apricot Seedlings, Plum, and Peach stocks.

Cherries worked on Mazzard Seedling or Kentish stock, limited number on Mahaleb.

Peaches, Nectarines, Pears, Plums, Quinces, Berry Bushes, Nuts, etc.

Carefully packed and despatched to all parts of the world.

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And Fruit Tree Stocks

GOODMAN'S

*Lead for
Quality, Reliability, and Value.*

Orchardists and fruit growers in all parts of Australia buy their trees with the utmost confidence from Goodman's. Repeat orders follow season after season.

Backed by 45 years' experience and expert knowledge, Goodman's Trees guarantee the grower bumper crops of choicest fruit, that brings highest prices in home and overseas markets.

For 1935 delivery, an excellent range of varieties worked on wonderful stocks.

Expert packing and prompt despatch to any part of the world.

Write for Goodman's Centenary Fruit Tree Catalogue—Post Free on Request.

C. J. Goodman

Picnic Point Nurseries, Bairnsdale, Victoria.

The System of Planting.

There are two common systems of planting out, viz., the "hexagonal" and the "square." The former has the advantage that it enables working three ways compared with two when the trees are planted on the square, which is sometimes an advantage on hilly country, though in such a case, it is wiser to divide the area into blocks according to the slope of the land, and fix the direction of the rows so that the furrows left from ploughing or cultivating will carry the water at an easy grade. On hillsides, also, sufficient "surface retaining" drains with

an easy grade should be provided before planting, to prevent heavy flows of water washing away the cultivated soil.

More trees may be planted in a given area by the hexagonal than the square system, the distances apart being equal, but it should be remembered that it is the carrying capacity of the land, i.e., the number of trees which it has been found satisfactory to plant to the acre, that is the governing factor on planting. If it is desired to plant seventy-five trees to the acre, the distance apart would be 24 feet on the square, but would be increased to 25 feet 9 inches with the hexagonal system.

VARIETIES FOR PLANTING

In Order of Ripening.

It is a mistake when replanting an orchard with the same class of tree which it contained previously, particularly where irrigation is not available. For instance, Apples will not grow satisfactorily where Apples previously grew; Pears where Pears grew; Apricots where Apricots grew, and so on. As a guide to planters, we publish hereunder a list of reliable varieties, but it must be borne in mind that variations of climate, situation and market needs in Australia require considerable thought in the actual selection of varieties to be planted.

All varieties which would cater for local trade, that is shop, city market and country market trade, could not

be expected to be suitable for interstate and export trade, but they answer the local trade requirements, because of the fact that the time between packing and marketing is only a matter of hours, ensuring perfect condition when sold.

In the interstate trade, where days of travel have to be taken into consideration, harder varieties have to be chosen.

The following details have been supplied by Mr. T. W. Brunning, fruitgrower and nurseryman of Somerville, Victoria.

LOCAL TRADE.

Apples—

Beauty of Bath, Lord Suffield
Wilson's Red June or William's Favorite
Gravenstein, Alfriston
Peasgood Nonsuch
McIntosh's Red
Duke of Clarence, Willie Sharp
Jonathan, Delicious, Dunn's (where suitable)
Cleopatra, Reinette du Canada
London Pippin, Rome Beauty
Pomme de Neige
Stewart's Seedling
Tasma, Granny Smith, Yapeen
Yates

Pears—

W.B.C.
Howell
Twyford Monarch
Beurre Bosc
Josephine de Malines
Winter Cole
Packham's Triumph
P. Barry

Plums—

Cherry Plum, Red
Rivers Early Prolific
Early Orleans, Diamond
Angelina Burdett, Jefferson, Ponds
Seedling, Green Gage
Yellow Egg
Grand Duke or President

Damson—

Rivers Early, Crittenden

Prunes (Fresh or Dried)—

Splendour, D'Agén
Robe de Sergeant

Japanese Plums—

Alpha, Wilson, Beauty, Narrabeen

Santa Rosa, Formosa, Burbank,
Billington, Wickson
Satsuma, October Purple
Very Late—Red Heart, Paterson's
Late

Apricots—

Newcastle, Royal, Oullins Early,
Early Moorpark
Hemskirke, Moorpark
Tilton, Trevatt
Twyford Seedling
Dried Fruit, Peaches.
Elberta, Kia Ora

Peaches (Fresh Fruit)—

Le Vainqueur, Sneed, Mayflower,
High's Early Canada
Brigg's Red May
Hale's Early, Triumph
Irelands
Wiggins, Peregrine
Smith Seedling
Early Crawford
Sweet Seventeen, J. H. Hales
Elberta, Lady Palmerston
Webbs
Late Crawford
Lippiatts Late Red

Canning Varieties—

Phillips Cling, Peak Cling
Golden Queen, Pullar's Cling
Thiele's Cling

Cherries—

Early Purple Gean
Werder's Early Black
Burgsdorf's Seedling, Early Rivers
Eagle's Seedling
Bedford Prolific
Bigarreau Napoleon (Royal Ann)
Florence, St. Margaret
Black Republican, Noble

Canning Varieties—

Bigarreau Napoleon (Royal Ann)
Florence

Nectarines—

Early Rivers, Victoria Rivers
Goldmine, New Boy
Lippiatt's Prolific

Quinces—

Champion, Manning's Seedling
Pearshaped, Appleshaped
Rae's Mammoth

Loquats—

Herd's Mammoth
Fernbank Prolific
Japanese Mammoth
Thames Prize

INTERSTATE TRADE.

Apples—

Willie Sharp
Dunn's (where suitable).
Cleopatra
Jonathan
Delicious
London Pippin
Stayman Winesap
Rome Beauty
Stewarts
Tasma
Red Statesman
Granny Smith
Yapeen
Yates

Pears—

W.B.C.
Howell
Josephine de Malines
Packham's Triumph
Beurre Bosc
Winter Cole
Winter Nelis
P. Barry

Plums—

Grand Duke
President
Coe's Golden Drop

Prunes (Dried)—

Splendour
D'Agen
Robe de Sergeant

Japanese Plums—

Santa Rosa, Satsuma, Ballena, Burbank
Shipper
October Purple

Apricots—

Moorpark
Tilton
Trevatt

Dried Peaches—

Elberta, Kia Ora

Peaches (Fresh Fruit)—

Catherine Ann
Blackburne
McDevitt's Late Cling
Krummell October

Canning Varieties—

Phillip's Cling, Peak Cling
Golden Queen
Pullar's Cling
Thiele's Cling

INTERSTATE OR N.Z.**Cherries—**

Early Lyons
Bigarreau Napoleon (Royal Ann)
Florence
St. Margaret

Canning Varieties—

Bigarreau Napoleon (Royal Ann)
Florence

FOR ORDINARY TRADE.**Oranges—**

Washington Navels

Valencia Late

Lemons—

Eureka, Lisbon

Mandarin—

Emperor

Grapefruit—

Marsh's Seedless

Gooseberries—

Roaring Lion, Crown Bob

EXPORT TRADE.**Apples—**

Alfriston
Willie Sharp
Dunn's (where suitable).
Cleopatra
London Pippin
Jonathan
Delicious
Rome Beauty
Red Statesman
Stewarts (or Ballarat)
Tasma
Granny Smith
Rokewood

Pears (Where Pre-cooling is Available)—

W.B.C.
Packhams Triumph
Beurre Bosc
Glou Morceau
Josephine de Malines
Doyenne du Commerce
P. Barry
Winter Nelis

Plums—

Grand Duke
President
Coes Golden Drop

Prunes, Dried—

Splendour
D'Agen
Robe de Sergeant

Japanese Plums—

Satsuma
Ballena
Shipper

Apricots—

Drying Moorpark
St. Ambrose

Dried Fruit—Peaches—

Elberta, Kia Ora

Peaches (Fresh Fruit)—

Catherine Ann was shipped successfully to England.

Peaches—Canning Varieties—

Phillips Cling
Peak Cling
Golden Queen
Pullar's Cling
Thiele's Cling

Cherries—**Canning Varieties—**

Bigarreau Napoleon (Royal Ann)
Florence

Strawberries—

Wilson's Pride
Melba (Uptutmark)

Currants (Black)—

Black Naples, Lee's Prolific
Carter's Black Champion

Currants (Red)—

La Versailles

Currants (White)—

White Imperial, White Dutch

Rhubarb—

Stone's Ruby, Wilson's Ruby

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FRUIT TREE NURSERYMEN

John Brunning & Sons, Somerville.—This business was originally established by William Brunning, who arrived in Australia in 1866, and worked for 10 years with his brother, the late George Brunning, who established nurseries at St. Kilda, until 1866, in which year he selected a site at Somerville. On his death, in 1890, the business was taken over by his son, the late John Brunning, father of the present proprietors, T. W. Brunning and G. J. Brunning. Since 1920 the business has been carried on by the latter, who represents the third generation in the business. Mr. T. W. Brunning saw war service in France and Belgium.

At the present time the total area of the properties is 650 acres, 218 of which are planted to orchards and nursery stocks. The nursery lines grown comprise, Almonds, 18 varieties, Apples 75 varieties, Pears 81 varieties, Plums (Japanese, European and Persian) 81 varieties, Peaches 74 varieties, Nectarines 24, Cherries 36, Quinces 14, Loquats 9, Apricots 30, Oranges 10, Lemons 4 varieties, also berry fruits. Because the demand for fruit trees from this nursery is world-wide, each variety grown has its particular value and use.

To cope with the large crop of fruit which is harvested annually, a modern cool store was erected on the property three years ago with a refrigerating capacity for 17,500 cases.

It is interesting to note some of the novelties which have been introduced by Messrs. John Brunning & Sons, including the following:—Cherries, Japanese Cherry, Tangshii, yellow skin ripens fourteen days before any Australian variety—flavor good and color is a bright attractive yellow.

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Apricots: Butler, rich and juicy, very consistent heavy bearer, original trees nine years old, crop to date 25 bushel cases, a creditable performance.

C. J. Goodman, Picnic Point Nurseries, Bairnsdale, Victoria.—This business was established in 1889 by the late Mr. Charles J. Goodman, and has been known as one of the leading Australian fruit tree nurseries since this date.

The aggregate production from this nursery over a period of years runs into many millions of trees, and they have found their way to every part of Australia, New Zealand, and overseas countries.

On the death of Mr. C. J. Goodman in 1910, the management of his nursery was taken over by his nephew, Mr. G. W. Peart, who managed the nursery for eighteen years for Mrs. C. J. Goodman, purchasing the business himself in 1928.

It is estimated that at the present time 150 acres are devoted to raising young trees, and the stock at present comprises over one million trees in various stages of early growth. The soil and climate of the district are eminently adapted for the growth of young trees, which carry an abundant supply of roots, plenty of fibre, a joy to every tree planter.

The Peart-Goodman association with the fruit industry has been far reaching, as his father, Cr. J. W. Peart, and his uncle, Mr. T. J. Peart, were amongst the first to establish fruit orchards in Bairnsdale. Mr. Tom Peart, a

younger brother, is works manager at the Shepparton Cannery. A younger brother, Alf, paid the supreme sacrifice in the Great War.

C. A. Nobelius & Sons Pty. Ltd., Emerald.—The founder of the Gembrook Nurseries at Emerald, was the late Mr. C. A. Nobelius, who passed away in 1921, at the age of 71. He was one of the early pioneers in the fruit tree nursery business. He carved a nursery out of the bush at Emerald (Vic.), and gradually built up one of the largest fruit trees nurseries in the world.

The peak period of this business was reached in the years 1910 to 1915, when up to 300 acres were planted to fruit trees: — stocks of which in all stages of growth would amount to over 2,000,000.

The late Mr. J. B. McKee planted his own orchards, and for many years carried on the orchards in conjunction with his nursery. It is interesting to note that the third generation of this family is conducting the business. One of the main principles of this firm has always been to supply selected quality trees which are carefully grown, dug, packed and despatched. Trees are despatched to all parts of Australia and also to New Zealand and overseas.

Fumigation of trees to free them from all diseases and noxious pests is carried out under the supervision of the Government inspectors, and this phase of the business is carefully attended to before trees leave the nursery.

An interesting descriptive catalogue of fruit trees and Roses is issued by the Cumber Nursery, and copies are obtainable free on request.



Springtime in a Victorian Orchard.

Some idea of the difficulties of transport in the early days can be gauged from the fact that loads of fruit trees for clients had to be transported by means of two teams of bullocks which were kept for the purpose, from Emerald to Narre Warren, the nearest railway station.

Mr. C. L. Nobelius, a son of the original founder, is now manager of the business, which he has been connected with for the past 34 years.

AN OLD ESTABLISHED FRUIT TREE NURSERY.

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The Balhannah Fruit Tree Nurseries, of Balhannah, Sth. Australia, is one of the largest and oldest established fruit tree nurseries in South Australia. All the leading commercial varieties are grown extensively at this nursery, and despatched to all parts of the Commonwealth and overseas.

In addition to the fruit tree nursery, extensive orchard properties are owned by Mr. H. N. Wicks, the proprietor of the Balhannah Nurseries.

An excellent catalogue is issued each year, containing complete lists with a description of varieties to plant.

Visitors to South Australia are cordially invited to call at the Balhannah Nurseries and inspect the stock growing.

Mr. Wicks is always pleased to hear from growers on all matters pertaining to fruit trees, and his advice in regard to varieties to plant, position and suitability of locality, is always available.

GRADING AND LEVELLING BEFORE PLANTING.

On irrigable land, attention should be paid to selecting the higher parts for planting the early ripening varieties, as these require fewer waterings than trees whose fruits mature later in the season. Where irrigation is necessary, grading or levelling the land is one of the most necessary operations.

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History and Development of the Australian Fresh Fruit Export Trade

Interesting Reviews
from
Various States

Tasmania

About the year 1873 four Apple growers in the Huon district, which is Tasmania's principal Apple growing centre, sent between them 100 cases of Apples to London.

This was the first time Tasmanian Apples were wrapped in paper. The thinnest brown paper that was available was purchased and cut into squares and used to wrap the dessert varieties, the cooking varieties were not wrapped.

For some years this shipment was not followed up, although occasional small shipments were made as deck cargo, but of these we cannot secure any information. In the year 1887 the first shipment of Apples was sent via Melbourne in refrigerated space.

In the year 1890 three shipments left Hobart for London in refrigerated space, the first being made of 6,068 cases by an Orient Line vessel, whilst two P. & O. vessels lifted between them a total of 15,343 cases, making the season's total 21,411 cases.

From 1890 onwards, the export trade between Tasmania and the United Kingdom, and later with the Continent, steadily grew, excepting the war period, 1915-1918, during which space was practically unprocurable.

In the year 1905 the shipments to England had grown to 363,426 cases, and they varied from about that quantity to about half a million cases until 1911, when the total shipments reached 782,588 cases.

In the next two seasons the quantity exported to England was slightly less, but in this period shipments were made to Germany and South Africa.

From and including the year 1914 the shipments tallied as follows:—

*1914	961,722 cases
*1915	493,217 "
*1916	814,590 "
*1917	132,190 "
*1918	—
1919	262,633 "
1920	457,833 "
1921	585,563 "
1922	1,354,553 "
1923	1,562,268 "
1924	1,008,430 "
1925	1,354,621 "
1926	2,147,352 "
1927	1,105,531 "
1928	2,804,704 "
†1929	920,851 "
1930	2,722,568 "
1931	2,413,597 "
1932	3,415,716 "
1933	3,213,992 "
1934	3,041,175 "

*War period, shipping under control of British Government.

†The crop was very light in this year owing to bad weather.

We are indebted to Messrs. W. D. Peacock & Co. Pty. Ltd., Hobart, for the foregoing information.

Victoria

The Development of Fruit Export from 1887 to 1934.

Although some fruit was exported from Victoria previously, the first studied attempt to bring Victorian fresh fruit under the notice of English buyers was when shipments were made from May to July, 1887, on the occasion of the Colonial and Indian Exhibition in London. An old record of the files of the Agricultural Department shows that the then Victorian representative in London, Mr. Graham Berry, afterwards Sir Graham Berry, reported the arrival of 317 cases of Apples, 82 cases of Grapes, 15 cases of Pears and some small offerings of other fruits. The report submitted by London at the time stated that the Apples, packed in 40 lb. cases containing 100 to 120 Apples, landed in good order, their size, color and flavor being excellent. They brought from 2d. to 6d. each, and the profit to the growers was 7/- to 17/- per case. Grapes brought 1/- to 2/6 per lb., and Pears 2d. to 1/6 each.

It is a matter of historical interest to note that at this time the fruit was obtained from orchards as near as Camberwell, Hawthorn, Malvern, Brighton and Balwyn, in the Melbourne district, and from Ballarat, Sandhurst (now Bendigo), and Harcourt. The growers providing the fruit were Charles Allen Junr., F. T. Frankchase, Charles Draper, F. Thornell, Shepherd & Son, W. Eagle, J. T. Lang, W. Bailey, W. Cole, H. Ely, and others well known in the pioneering days of Victoria's fruit industry.

Early Shipments.

There were no regular large shipments of fruit sent to England, however, following that special trial, for many years. The first official records of exports date only back to 1891-92, when 1,638 cases, of an estimated value of £819, were exported, since when the trade has steadily developed. In spite of the success of what is generally termed the "Somerset" shipment of Pears in 1911, the export of this fruit developed very slowly until 1925-26, when 45,764 cases of Pears were shipped, and exports have consistently increased, until the record quantity of 401,067 cases was shipped in 1932-33. Of this quantity, 16,084 cases were shipped to Canadian ports, since when a steady and profitable export trade, in Pears, with that country has been maintained.

Expressed in figures representing the average exports per year, in periods of five years each, since 1891, it is seen that the quantity of Apples shipped abroad has increased consistently. Shipments were as follows:—1891-96, average per year, 6,226 cases; 1896-1901, 19,275 cases; 1901-06, 60,192 cases; 1906-11, 181,185 cases; 1911-16, 293,551 cases; 1916-21, 160,647 cases; 1921-26, 298,247 cases, and 1926-31, 442,788 cases.

Prior to the world war, the export of fresh fruit was practically limited to the United Kingdom and European ports, although small shipments were made to South

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Africa, but with the strong development of fruit culture in Cape Colony this trade has been lost to Australia.

Commonwealth Takes Over.

Prior to 1906, Victorian fruit was exported under the provisions of the Export Products Act, a State measure, but in that year this was superseded by the Commonwealth Commerce Act, by which the Commonwealth took over the supervision of all exports from Australia, and, under an arrangement between the Commonwealth and the individual States, the services of those officers, who had been responsible for supervising exports, were transferred to the Commonwealth.

In 1907, owing to the rapid growth of fruit exports and to the lack of sufficient facilities for handling inspection at the wharves, the department leased the old dumping shed at Port Melbourne, and undertook to inspect and handle all fruit prior to it being placed on board the ship. This method of inspection was followed until 1912, when, owing to a still further rapid development of the export of fruit, the department decided to relinquish this service, and the Fruit Export Handling Committee was formed, which has remained in active operation ever since.

Country Inspection.

To relieve the Committee from handling the whole of the export fruit at the ship's side, the department later inaugurated the present system of inspection at those country stations from which the greatest quantity of fruit is sent for export. By this arrangement, about 50 per cent. of the total exported is examined and certified at the country stations, sent direct to the ship, and placed on board without further inspection. By this means delays and congestion have been obviated, and the system has proved so successful that it is still being followed.

War Problems.

Upon the outbreak of the war in 1914, the industry was faced with the problem of the dislocation of transport and marketing facilities abroad to such an extent that from an export of 356,516 cases in 1914 to the United Kingdom and Europe alone, exports dropped in 1915 to 4,000 cases. This serious setback, which involved the complete cutting off of the German market, which, up to that time, had developed in importance second to, and almost as extensive as, that of Great Britain, appeared at the time to have delivered a staggering blow to the industry, but, with the co-operation of the Defence authorities, the export trade in 1916 rose to 403,017 cases, and, despite fluctuations owing to the unsettled conditions immediately following the end of the war, since 1919-20, it has consistently developed.

The following table shows the quantities of Apples and Pears shipped during each of the past three seasons, with the destinations to which they were consigned; the figures indicate the number of cases:—

Port	1931-32.	
	Apples.	Pears.
London	100,824	146,636
Liverpool	16,961	—
Hull	11,129	—
Glasgow	2,372	—
Hamburg	—	—
Bremen	6	—
Rotterdam	—	—
Eastern Ports	7,786	5,575
Canada	—	1,900
Miscellaneous	1,744	68
TOTAL	140,822	154,179

Port	1932-33.	
	Apples.	Pears.
London	813,657	377,730
Liverpool	236,735	—
Hull	165,749	—
Glasgow	77,338	—
Hamburg	118,350	6,095
Bremen	4,013	6,707
Rotterdam	14,315	—
Eastern Ports	16,720	4,451
Canada	—	16,084
Miscellaneous	100,756	—
TOTAL	1,447,633	411,067



Loading export fruit at Port Adelaide. Note wooden frame in sling to prevent ropes from crushing cases.

Port	1933-34.	
	Apples.	Pears.
London	362,605	216,257
Liverpool	83,475	—
Hull	81,003	—
Glasgow	32,548	—
Hamburg	99,751	—
Bremen	6,186	—
Rotterdam	46,336	—
Eastern Ports	16,028	5,929
Canada	—	3,813
Miscellaneous	1,757	170
TOTAL	729,689	226,169

Improvement of Quality.

From provisions which had only insisted upon export fruit being of good average quality at the time of shipment, the regulations have been gradually strengthened, with the combined efforts of the growers' associations and the department, until now they include requirements em-

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bracing uniformity in color for different varieties, uniformity in the size of the fruit, standardisation of cases with respect to the sizes and quality of the timber used and the labelling and marking of the cases before shipment. It can now be fairly claimed that the standards established by Australia are equal to, and, in some respects better, than those of any other large fruit exporting country.

It is now realised that, with the severe competition which has developed in the period since the war, we can only maintain our hold upon the markets already secured, or hope for any success in establishing future markets as yet unexploited, by maintaining, or even improving, the high standard of our export fruit.

Whilst we must remember that the fruit industry has had to face many problems during recent years, largely, in the past three years, due to the world wide depression, which still exists in some very definite degree, these problems are slowly passing, and, with the assistance of the high standards already set up for our fruit, there is no valid reason to anticipate that such problems will not be overcome. Contributing factors to this will undoubtedly be a continuance of the improvement of production methods and quality, which the keen competition forced upon us by other producing countries during the depression years stimulated.

Amongst the well-known and efficient officers of the Department of Agriculture who have been responsible for the supervision of the export of fresh fruit in the past, and who have each contributed much to the development of the export trade, may be quoted Messrs. G. Neilson, J. Knight, J. G. Turner, and E. Meeking until Mr. J. M. Ward's appointment in 1924 as Superintendent of Horticulture, the position which he ably fills at present.

The Future.

It can be accepted that the future of the fresh fruit export industry, and, indeed, of the whole fruit industry, lies in all parties, growers, shippers and departmental officers alike, co-operating in the elimination of the export of unprofitable varieties, the maintenance of quality standards, the lessening of production costs and transportation charges, the continuance and extension of efficient technical research work, and the complete and enthusiastic co-operation of all engaged in the fruit industry in any way, in devising and supporting means of establishing and maintaining the industry on an even more permanent and satisfactory basis.

EXPORT TRADE IN WESTERN AUSTRALIA

(By G. W. Wickens, Superintendent of Horticulture, Perth, W.A.)

It is believed fruit was exported from Western Australia to England very early in the present century, probably in 1901, but the export of fruit in commercial quantities definitely commenced in 1912, with a total of 65,205 cases, the principal lines being 52,710 cases of Apples, 10,557 cases of Grapes and 1,859 cases of Pears. In addition to Apples, Grapes and Pears, a few Nectarines, Plums, Peaches, Tomatoes, Quinces and Passion-fruit were exported.

In 1913 the total increased to 71,255, Apples, Grapes and Pears being still the principal kinds of fruits to be exported, but an additional kind of fruit made its appearance that year, in Oranges, 277 cases being exported: destinations, London, Colombo and Singapore.

In 1914, the total had increased to 126,808 cases. Then the World War intervened, and in 1915 the total dropped to 71,470, with a still further decrease in 1916 to 38,903 cases.

In 1917 82,910 cases were shipped overseas, but in that year Western Australia had the rare experience of shipping fruit to the Eastern States, 89,295 cases of Apples and 2,592 cases of Oranges being that year forwarded to these markets. Export was still in the doldrums in 1918, overseas shipments amounting only to the very small total of 18,245 cases.

In 1919, overseas shipments amounted to 81,426 cases, and in 1920 a definite increase was noted, the total in that year amounting to 211,243 cases.

In 1921 there was a slight reduction, 188,108 cases being sent away—1922, 269,241; 1923, 407,085 cases; 1924, 318,887 cases; 1925, 403,283 cases. It is interesting to note that in this year, 1925, Hamburg again featured as one of the markets to which Western Australia exported fruit.

In 1926, 369,359 cases of fruit were shipped overseas, and in 1927, 564,412 cases, Stockholm in that year coming into the picture with an import of 29,570 cases of Apples.

In 1928, a year of light crops, the total export was only 235,498 cases, and in that year it is noted that Hamburg was the biggest importer of Apples with 84,586 cases; Stockholm, 42,678 and London 12,785 cases.

In 1929, a year of heavy Apple crops, the total export was 737,676 cases. In that year Hamburg received

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NEW ZEALAND.—J. A. Redpath & Sons Ltd., 181 Cashel-street, Christchurch, & Branches.

344,718 cases of Apples, London 130,051, and Stockholm 49,354 cases.

In 1930, Western Australia had a very light crop of Apples, and the total quantity of all kinds of fruit exported only amounted to 227,820 cases, of which Apples comprised 159,214 cases.

In 1931, 554,126 cases were shipped overseas; 1932, 831,915 cases; 1933, 603,777 cases, and in 1934, 702,795 cases.

During the last ten years the area under Apples in Western Australia has been steadily increasing, and from this year onwards the average crop should not be below one million cases annually.

At the present time there does not seem much chance of the increase in production being represented by any increase in export to Great Britain, but it is to be hoped that the world position in regard to marketing will steadily improve, and that restrictions on export will no longer need to be imposed.

During the years mentioned above, the quantity of Apples exported showed a big increase; Pears, Grapes and Oranges had not bulked largely in our export sheets. The greatest quantity of Oranges shipped in any one year was in 1923, when 19,799 cases were exported.

Nineteen thirty-two saw the greatest quantity of Grapes exported, the total being 54,171 cases, and 1933 was the biggest year for Pears, 46,986 cases being shipped.

Shipments from Albany.

The development of the trade in fruit shipments from Albany is very interesting. From a small beginning a substantial trade has developed. In this connection it is of interest to refer to newspaper files for the year 1910, from which it is evident that Messrs. Henry Wills & Co. Ltd., were the pioneers of the trade. Varieties then shipped included Jonathan, Adams Pearmain, Prince Alfred, Cleo., Dunns, Blondin, Fall Pippin, Fillbaskets, Cox's Orange Pippin, etc. Pears were also shipped even in the early days.

In the first place it took much negotiation to bring vessels to Albany, and for the holds to be opened to permit of fruit being loaded at this port. After this achievement and the sending of fruit to London and to Germany, some trouble was experienced with shipments, and in one instance a strike in London had bad effects on prices. However, growers were not discouraged by early setbacks and the fact that the nett export prices were lower than local prices because it was realised that export was a necessity owing to areas yet to come into bearing. Subsequently growers were rewarded by better prices for their enterprise.

Shipments from Albany to London in the early days were as follows:—864 cases in 1910; 2,502 cases in 1911, and 5,450 cases in 1912. In 1908 the export from Albany to Hamburg was 995 cases, increasing to 8,571 cases in 1912.

Reference to the files shows that Messrs. Henry Wills & Co. Ltd. guaranteed the space to the shipping companies without recourse on the growers, and that their services were esteemed.

With the development of the co-operative movement in Western Australia, and particularly in the Mt. Barker district, which is served by the port of Albany, the bulk of the fruit export trade passed out of the hands of private firms, being retained by the growers themselves under their co-operative company. Naturally, the firms concerned regretted losing trade which they had pioneered, but of course recognising that the growers were justified in making a laudable effort to benefit the industry.

The South Australian Apple and Pear Export Trades

(By Mr. G. Quinn, who supervised the first shipment of South Australian fruit in 1896 and all subsequent exportations up to 1934.)

The regular export of Apples from this State began in 1896, shortly after the establishment of the South Australian Government Wine and Produce Export Depot in London, and cold stores at Ocean Steamers Wharf, Port Adelaide. Tasmania had already begun to send regular shipments to London several years prior to this date, and Victoria had also followed in her wake, with lessened quantities.

In this State the writer of these notes has a keen recollection of going amongst the Apple growers and fruit dealers in the East End Market in Adelaide, soliciting a few cases here and there to fill the shipping space taken by the newly-formed export depot. Not a few rebuffs and expressions respecting the futility of the venture greeted our efforts, but encouraged by the support given by a few growers and merchants, the magnificent total of 647 cases of Apples were sent away in several shipments during the 1896 season.

This fruit was packed in all sorts of cases. Some placed the Apples in an unwrapped condition into narrow three-quarter bushel Orange cases lined with newspapers, pressed the lids down hard and flattened the top layer. Others used the long flat case holding a little over a bushel, then adopted by Victorian and some Tasmanian shippers. A few new kerosene cases with the oil merchant's brands scraped off were also requisitioned. Some of the Apples were wrapped in tissue papers with the surplus margins screwed with meticulous care around the stalks.

The grading in the lots of the different growers was very irregular in so far as sizes and colors went, but as the principal Apple areas were not at that time infested with codlin moth, this pest was not in evidence. Black spot could be sorted out in the grading, and very little came under the then State Inspector's notice. The bitter pit had not at that time become the bugbear it afterwards proved to be to the Apple exporter.

The packing was done on the "square" pack in which the Apples in the upper layer in a case rested directly upon those below, and did not occupy the spaces between the adjacent fruits as is now done in using diagonal packs.

For the first three seasons the Government Export Depot procured the shipping space and the growers packed their Apples and shipped them through the Government Depot to London, where the then London manager (Mr. E. Burney Young) had them sold in Covent Garden Market. The shipping freight was 4/3 per case, and only mail steamers catered for the trade. The writer, in his endeavors to further the trade, supervised the handling and loading as far as the autocratic powers of the ships' officers would permit.

There was no Outer Harbor in existence then, and the inner harbor at Port Adelaide had insufficient depth of water at the wharves along the Port Adelaide River, or the turns in the river's course were too abrupt to tempt the larger ocean-going steamers to come alongside. In consequence of these disabilities, the mail steamers anchored in the roadstead several miles off Semaphore or Largs Bay Piers, and the pre-cooled Apples were conveyed from the Government cold stores and lightered out to the mail boats during the night time, and loading began

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about 6 a.m. next morning. The writer went aboard the mail steamer on the last passenger launch at night, and was up betimes to watch the stevedores lift the fruit. How it was stored in the holds was never known, as the ships' rules forbade any Government Fruit Inspector entering the insulated hold.

The writer's first disagreement arose when the stevedores packed about a dozen and a-half of the cases of Apples into a canvas sling and hauled them from the hold of the lighter and landed them on the deck of the steamer with a resounding bang. A protest to the ship's officer on duty and the ganger of the stevedoring company resulted in wooden trays being procured and the cases stacked on this more rigid base. This was an improvement, but the rope slings or the wire derrick cables still pressed into the sides of the cases when the weight of lifting the heavily stacked tray came into action. Little by little improvements were introduced until finally, under the pressure of the State law passed for the prevention of injury to fruit and vegetables in 1927, the stevedoring companies at Port Adelaide introduced protective devices whereby all strain was taken off the cases of fruit whilst being stacked and swung from wharf to ship's hold. The above law enabled the writer to insist on walking planks being placed over all cases of fruit, which would otherwise have been trodden on by the workmen during the loading operations.

During the past few years the officers of the stevedoring companies have done everything within reason to safeguard the fruit during loading and stowing time, and the refrigerating engineers of most of the boats are most anxious to discuss methods of stowage, use of dunnage, etc., and any other procedure calculated to enable them to land their cargoes of fruit in Europe in good condition.

It was a long, slow road we traversed in this trade from 1896 to 1934, but when one considers the strides which have been made in all phases of this business during that time, it has proved a most interesting experience.

The control of the Apple export trade passed into the hands of the Commonwealth Government with the inauguration of the Commerce Act regulations in 1906, but it was a good many years before the Federal authorities could be persuaded to establish grade standards for the fruit and its containers.

During very recent years, and particularly since closer co-operation has arisen between the Department of Commerce and the representatives of the affiliated Apple and Pear exporting bodies in all the various States, great advances have been made in respect to the co-ordination of the export trade in Apples and Pears. Probably the world-wide depression and consequent economic pressure arising therefrom, combined with the competition from new entrants into the Apple trade of Europe have been the greatest factors in bringing the growers and shippers and Government Departments of Australia into closer co-operation in the direction of making a united effort to lift this trade on to a firmer basis.

The following figures culled from Departmental reports and records indicate the statistical side of the Apple and Pear export trade from this State:—

1896—647 cases Apples to London.
1897—11,334 cases Apples to London.
1898—4,106 cases Apples to London.
1899—12,264 cases, probably few cases Grapes, Oranges and Pears included.
1900—20,497 cases, Oranges and Pears included.
1901—48,411 cases Oranges, South Africa and Europe.
1902—15,750 cases Oranges, South Africa and Europe.

1903—56,178 cases Oranges, South Africa and Europe.
1904—103,000 cases Oranges, South Africa and Europe.
1905—95,493 cases Oranges, South Africa and Europe.
1906—88,885 cases Oranges, South Africa and Europe.
1907—36,998 cases, 26,779 being Apples.
1908—164,427 cases, 140,233 being Apples.
1909—75,760 cases, 63,681 being Apples.
1910—148,424 cases, 134,371 being Apples.
1911—75,187 cases of Apples.
1912—182,358 cases of Apples.
1913—37,452 cases of Apples.
1914—113,734 cases of Apples.
*1915—476 cases of Apples.
*1916—113,576 cases of Apples.
*1917—24 cases of Apples.
*1918—12 cases of Apples.
*1919—Nil.
*War and post-war period.
1920—16,221 cases of Apples.
1921—35,264 cases of Apples.
1922—79,939 cases of Apples.
1923—13,141 cases of Apples.
1924—257,233 cases of Apples.
1925—33,290 cases of Apples.
1926—329,486 cases of Apples.
1927—6,452 cases of Apples.
1928—496,685 cases of Apples.
1929—9,863 cases of Apples.
1930—647,320 cases of Apples and 19,914 cases of Pears.
1931—30,219 cases of Apples and 5,536 cases Pears.
1932—437,763 cases of Apples and 7,396 cases Pears.
1933—255,900 cases of Apples and 14,737 cases Pears.
1934—534,614 cases of Apples and 31,030 cases Pears.



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Australia Apple and Pear Export Council

Grades and Designations for Apples.

Blemish Tolerance.

Extra Fancy Apples shall consist of sound, clean, well-formed mature Apples of one size and one variety, free from broken skins and from disease. Slight blemishes from any cause may be permitted, provided such blemishes do not exceed 10 per cent. by number of the total fruit in any case, and provided that the total area covered by such blemishes on any Apple does not exceed the area contained in a circle having a diameter of one-quarter of an inch.

Russetting shall not be considered a blemish, provided that not more than 10 per cent. of the surface of each Apple is affected. No Apple in this grade shall be less than 2½ in. in diameter.

Fancy Apples shall consist of sound, clean and fairly well-formed mature Apples of one size and one variety, free from broken skins and from disease.

Slight blemishes from any cause may be permitted, provided such blemishes do not exceed 10 per cent. by number of the total fruit in any case, and provided that the total area covered by such blemishes on any Apple does not exceed the area contained in a circle having a diameter of one quarter of an inch.

Russetting shall not be considered a blemish provided that not more than 30 per cent. of the surface of each Apple is affected; provided this does not apply to the Sturmer variety—each Apple to which may be 50 per cent. russeted. No Apples shall be less than 2½ in. in diameter except in the case of specified varieties.

Varieties of Apples.

Color Requirements.

Solid Red—70 per cent. Extra Fancy, 35 per cent. Fancy.—Democrat, Duke of Clarence, McIntosh, King David.

Partial Red—50 per cent. Extra Fancy, 20 per cent. Fancy.—Crofton, Geeveston Fanny, Jonathan, Worcester, Pearmain, Yates, Aromatic, Delicious, King Cole, Dougherty, Scarlet, Rokewood, Australian Beauty, Tasman's Pride, Coleman Jubilee.

Striped Varieties—30 per cent. Extra Fancy, 10 per cent. Fancy.—Alexander, C.O.P., King Pippin, Pomme de Neige, Ribston Pippin, Statesman, Crow Egg, Nickajack, Prince Alfred, Rome Beauty, Stayman.

Uniform Color for Variety.—Cleopatra, Newtown Pippin, Sturmer, Stone Pippin, French Crab, London Pippin, Mobbs Codlin, Reinette du Canada, Stewarts, Schroeder, Alfriston, Dunns, Granny Smith, Wellington, White Winter Pearmain.

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The Port of Hull, on the east coast of England, offers many advantages for the consideration of Australian fruit shippers.

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a river frontage of seven miles, and twelve miles of quays. Being a wheat-discharging centre they have a capacity of 350,000 quarters of grain besides 207,000 tons of general cargo.

All of the quays have railway connection and special facilities are provided for the speedy despatch of fruit to inland centres. Sales are conducted by both auction and private treaty, and frequent daily trains bring buyers to the markets and rush their purchases away to distant towns in quick order.

The docks are controlled by the Great London and North-Eastern Railway Company, a company with a capital of £350,000,000, which ensures the efficient management of the docks and satisfactory service to shippers.

MANCHESTER.

In the Centre of One of the World's Greatest Markets.

Points for Australian Producers and Exporters.

(By Capt. W. J. Wade.)

WHEN MANCHESTER is referred to most people think of it only as the principal centre of the British cotton industry. It is apt to be overlooked that it is also one of the foremost British ports, and the economic distributing centre for over 12 million people. Lines drawn midway between Manchester and the ports of Liverpool, Bristol and London respectively enclose an area which contains that number of consumers.

The construction of the Manchester Ship Canal and Docks converted this great centre of industry—situated nearly 40 miles inland—into a deep water port, and the Manchester wholesale markets and imported fruit salerooms are the principal clearing houses for imported produce of every description consumed in the area, ranking next to those of London as regards size and volume of business transacted.

This is not surprising when it is remembered that within 50 miles radius of Manchester there are over 200 cities and towns, including such important manufacturing centres as Bolton, Blackburn, Bradford, Burnley, Halifax, Huddersfield, Leeds, Oldham, Sheffield, Stoke and many others. In fact, if the radius is extended to 75 miles around Manchester, i.e., within easy reach by motor haulage or rail, the population inside the circle is 14½ millions, i.e., more by over half a million than within a similar distance around London.

What is equally important, Manchester is also the greatest centre of industrial activity in Great Britain, for in addition to its staple trade—cotton—the engineering industry alone employs over 130,000 people in the city and its immediate vicinity, and there is scarcely an industry which is not represented in that area.

The Manchester Royal Exchange is the largest institution of its kind in the world; it was established in 1729, and has a membership of over 12,000, nearly all representatives of important firms in the cotton, engineering, chemical trades and transport in the surrounding area. The "floor" covers 8,222 square yards on one level, and at "High 'Change" each week a remarkable sight is presented when over 10,000 traders are simultaneously congregated on it. In addition, the coal and produce trades have separate exchanges in the city.

Where business of such magnitude is transacted an enormous amount of money necessarily circulates, and in this respect Manchester's banking figures provide a reliable trade barometer and index. The Banker's Clearing House returns prove that Manchester is easily the greatest British centre of banking and finance outside London,

Hull boasts the two largest docks on the north-east coast of England in the King George Dock and the Alexandra Dock, each embracing 53 acres of water area and capable of accommodating the largest cargo vessels using the port, giving a high water depth of 40 feet.

The main centre for the handling of fruit, vegetables and provisions is the fine Riverside Quay, which is 2,500 feet long, and up to 150 feet wide. Fruit sales are held on the dock and purchases can be loaded direct on to railway vans for transport to their destination. Well-equipped with transit sheds, modern travelling electric cranes and other handling facilities, the Hull Docks can offer shippers service equal to that provided in any of the other great shipping terminals in England.

and for many years the aggregate amount cleared through its banks has greatly exceeded the totals for Bristol, Hull, Newcastle-on-Tyne and Liverpool combined.

To summarise the position. The situation, lay-out and equipment of Manchester Docks ensures efficient and expeditious handling and distribution to an enormous population at the lowest possible cost, whilst the local markets and salerooms are provided with up-to-date facilities, and serve a population which ensures a constant demand at prices comparing favorably with those realised in other British markets, whilst distribution can be effected to the city and towns in the surrounding area with a minimum of handling and expense.

The population within Manchester's "economic area" consumes enormous quantities of imported produce,—a great deal of which, owing to trade custom and usage, has hitherto reached them at considerable expense via other ports. For example, the standard rail charges on butter from London to Manchester are 57/4 per ton, and approximately the same for imported meat and other refrigerated produce, whilst the average cost of forwarding fruit (via rail or coastal steamer) is 9d. per case,—charges which are necessarily added to the price paid by the consumer and correspondingly restrict the market and directly or indirectly are debited against the producer.

In dealing with this market of twelve million consumers, provided with all the requisite port and marketing facilities to ensure economic and efficient distribution, it is opposed to common sense and logic to ship Australian produce via any other route than to Manchester Docks. In fact, under present economic conditions,—when every penny expended in distributing charges counts,—it is a policy tending to prevent or restrict the development of trade with one of the world's greatest markets.

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One of the largest of the fruit handling organisations in Great Britain is Messrs. Geo. Monro Ltd., of Covent Garden, London. This firm has been established for three-quarters of a century and has built up a sound connection among buyers throughout the United Kingdom. Although receiving fruit from growers in U.K. and from growers in various parts of the world, they have always specialised in the sale of Australian Apples and Pears and in this matter have won the goodwill of Australian producers. The firm is well equipped for the rapid receipt and despatch of produce and at their show rooms and warehouses they can be adequately displayed.

The firm deals by means of private treaty only. The governing directors are: Major Edwin G. Monro, O.B.E. (chairman), Geo. Monro, C.B.E., and Bert J. Monro. Directors: Capt. J. Stuart Monro, Alee J. Monro and C. Cole. The chief agent in Australia is Major H. Dakin, V.D., Goldsbrough House, Macquarie-place, Sydney.

AUSTRALASIAN APPLE AND PEAR SHIPMENTS — SEASON 1934.

COMPILED AND ISSUED BY THE OFFICE OF THE AGENT GENERAL FOR TASMANIA.

CASES OR PACKAGES SHIPPED FROM—										NEW ZEALAND.		TOTALS.		Distribution of Apples by Ports.		
Name of Steamer.	Date of sailing from last loading arrival.	Port	N.S.W.	Q'LAND.	VICTORIA.	TASMANIA	S. AUST.	W. AUST.	Apples	Pears	Apples	Pears	Apples	Pears	Apples	Pears
Mongolia	30/1/34	9/3/34	—	—	8,338	—	—	—	—	—	10,165	—	14	10,165	14	Southampton, 10,165.
Mataroa	7/2/34	13/3/34	—	—	—	—	—	—	—	—	10,821	—	—	10,821	—	London, 10,821.
Zealandic	15/2/34	20/3/34	—	—	—	—	—	—	—	—	10,821	—	—	10,821	—	London, 10,783, Liverpool, 4,626, Glasgow, 1,117.
Idomenis	14/2/34	21/3/34	7,104	10,027	—	—	—	—	—	—	—	—	—	—	—	—
Maloja	13/2/34	23/3/34	—	—	7,703	—	—	—	—	—	—	—	—	—	7,703	—
Themistocles	10/2/34	26/3/34	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hobsons Bay	27/2/34	29/3/34	—	14,006	—	—	9,764	21,745	—	—	90,677	—	—	90,677	—	St'h'n, 1,012; Lon., 39,665
City of Glasgow	27/2/34	29/3/34	—	2,848	8,800	—	—	—	—	—	28,438	—	—	28,438	—	2,800 London, 2,848.
Balarat	26/2/34	29/3/34	—	2,940	35,242	—	—	8,556	11,067	—	58,640	—	—	58,640	—	19,879 London, 38,640
Westmoreland	23/2/34	1/4/34	8,902	—	1,854	—	—	61	—	—	22,497	—	—	1,861	—	Port Said, 61; Lon., 22,436.
Port Hunter	19/2/34	2/4/34	—	—	—	7	—	—	—	—	12,387	—	—	12,387	—	London, 12,387.
Moldavia	27/2/34	6/4/34	2,211	—	7,251	—	—	—	—	—	30,084	—	—	2,234	—	London, 30,084.
Malhana	27/2/34	10/4/34	—	—	—	—	—	—	—	—	10,984	—	312	10,984	—	2,322 Southampton, 10,984
Port Hardy	6/3/34	7/4/34	—	—	11,822	—	—	—	—	—	64,580	—	—	931	—	2,322 Southampton, 10,984
Clan Farquhar	7/3/34	8/4/34	10,182	—	54,998	—	—	—	—	—	65,180	—	—	931	—	2,322 Southampton, 10,984
Bitterfeld	7/3/34	9/4/34	—	3,345	—	—	—	—	—	—	—	—	—	—	—	—
Tongariro	7/3/34	10/4/34	2,167	—	10,286	—	—	—	—	—	—	—	—	—	—	—
Otranto	12/3/34	12/4/34	—	—	2,400	—	—	—	—	—	—	—	—	—	—	—
Meriones	19/3/34	15/4/34	—	—	26,179	—	—	—	—	—	—	—	—	—	—	—
Tairua	19/3/34	16/4/34	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mamamoti	19/3/34	16/4/34	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mamamoti	19/3/34	17/4/34	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Tuscan Star	13/3/34	17/4/34	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Opawa	9/3/34	17/4/34	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Rangitiki	16/3/34	19/4/34	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Port Bowen	14/3/34	20/4/34	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mooltan	19/3/34	20/4/34	2,691	846	—	—	—	—	—	—	—	—	—	—	—	—
Port Brisbane	13/3/34	20/4/34	—	14,815	—	—	—	—	—	—	—	—	—	—	—	—
Hororata	20/3/34	24/4/34	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Clan Macdougall	17/3/34	24/4/34	13,554	4,186	—	—	—	—	—	—	—	—	—	—	—	—
Jervis Bay	24/3/34	24/4/34	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Port Auckland	24/3/34	25/4/34	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Orford	26/3/34	26/4/34	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Barrabool	28/3/34	28/4/34	2,243	—	—	—	—	—	—	—	—	—	—	—	—	—
Port Chalmers	28/3/34	2/5/34	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Port Nicholson	28/3/34	3/5/34	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City of Brisbane	28/3/34	3/5/34	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Strathnaver	28/3/34	4/5/34	637	—	—	—	—	—	—	—	—	—	—	—	—	—
Nestor	27/3/34	5/5/34	2,908	—	—	—	—	—	—	—	—	—	—	—	—	—
Cortona	20/3/34	5/5/34	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Tigre	22/3/34	6/5/34	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Port Adelaide	29/3/34	6/5/34	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Kumara	23/3/34	6/5/34	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Stassfurt	5/4/34	7/5/34	2,936	—	—	—	—	—	—	—	—	—	—	—	—	—
Asphallion	30/3/34	8/5/34	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Tamaroa	4/4/34	9/5/34	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Port Alma	20/3/34	10/5/34	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Orsova	9/4/34	10/5/34	4,532	—	—	—	—	—	—	—	—	—	—	—	—	—
Matakana	7/4/34	12/5/34	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Somerset	4/4/34 13/5/34	—	3,006	—	9,592	—	8,149	—	6,959	—	—	—	23,114	9,592 P. Said, 348; Lon., 23,766.
Sultan Star	13/4/34 13/5/34	—	—	—	—	—	—	—	—	—	28,637	22,958	23,537	22,958 London, 23,637.
Tallman	28/3/34 14/5/34	—	—	—	—	—	—	—	22,560	—	—	—	22,560	— Hook of Holland, 15,346; Hamburg, 7,214.
Middlesex	31/3/34 14/5/34	—	—	—	—	—	—	—	—	—	65,822	—	65,822	— Halifax, N.S., 21,234; Lon., 44,588.
Ceramic	9/4/34 14/5/34	—	—	18,898	—	44,828	19,668	9,389	—	10,514	—	—	83,629	19,668 Lon., 35,481; Liv., 48,148.
Royal Star	7/4/34 15/5/34	—	—	62,806	16,950	61,161	508	—	52,423	6,729	—	—	176,330	24,187 Lon., 33,903; Liv., 38,280; Hamburg, 104,207.
Karama	12/4/34 16/5/34	—	—	—	—	—	—	—	—	—	33,215	—	33,215	— Hamburg, 33,215.
Otakl	16/3/34 16/5/34	—	—	—	—	54,621	—	—	—	—	54,621	—	—	— Lon., 38,281; Liv., 16,340.
Coptic	6/4/34 17/5/34	—	—	—	—	—	—	—	—	—	33,622	—	33,622	— Avonmouth, 4,902; Liv., 19,026; Glasgow, 9,694.
Port Fairy	14/4/34 17/5/34	—	—	40,557	—	—	—	—	—	18,739	606	—	59,276	606 P. Said, 1,312; H. of Hol., 12,331; Hamburg, 26,145; London, 19,433.
Aagtekerk	19/4/34 18/5/34	—	—	—	—	18,081	—	—	—	2,538	—	—	20,619	— P. Said, 8,150; Rotterdam, 12,463.
Rangitane	14/4/34 18/5/34	—	—	—	—	—	—	—	—	—	10,772	16,118	10,772	16,118 London, 10,772.
Doric Star	31/3/34 20/5/34	—	—	—	—	—	—	—	—	—	13,032	3,194	13,032	3,194 London, 13,032.
Port Pirie	7/4/34 22/5/34	—	—	—	—	—	—	—	—	—	22,471	—	22,471	— Rio de Janeiro, 13,015; London, 9,456.
Esperance Bay	21/4/34 22/5/34	—	—	9,623	—	52,206	—	5,528	—	21,867	—	—	89,234	— Hull, 31,621; Lon., 57,603.
Stirlingshire	17/4/34 23/5/34	—	—	15,986	—	21,709	399	—	—	—	—	—	37,635	399 Hull, 6,031; Lon., 20,729; Liverpool, 10,935.
Oronsay	23/4/34 24/5/34	—	—	6,551	8,400	24,001	2,754	3,797	1,397	2,793	877	—	37,142	13,428 London, 37,142.
Hurunui	30/3/34 24/5/34	—	—	—	—	85,348	1,145	—	—	—	—	—	85,348	1,145 Lon., 35,238; Ham., 50,120.
City of Winchester	14/4/34 24/5/34	—	—	24,089	13,388	—	—	17,778	7,023	—	—	—	41,877	20,411 Hull, 14,331; London, 24,099; Liverpool, 3,447.
Port Curtis	7/4/34 25/5/34	—	—	—	—	—	—	—	—	—	21,927	—	21,927	— Avonmouth, 4,461; Liv., 25,133; Glas., 11,973.
Cumberland	13/4/34 25/5/34	—	—	—	—	—	—	—	—	—	41,617	—	41,617	— Avonmouth, 4,461; Liv., 25,133; Glas., 11,973.
Bendigo	26/4/34 26/5/34	2,904	1,214	597	8,089	9,673	46,449	10,619	—	7,710	—	—	76,378	10,887 London, 76,378.
Cornaldo	14/4/34 27/5/34	—	—	—	—	154,984	—	—	25,730	18	—	—	180,714	18 Ham., 87,333; Lon., 70,841; Manchester, 22,480.
Nebraska	14/4/34 28/5/34	—	—	—	—	—	—	—	—	—	114,637	7,067	114,637	7,067 Lon., 45,022; Man., 53,665; Glasgow, 14,950.
Port Darwin	20/4/34 28/5/34	—	—	—	—	67,513	3,732	27,707	19,482	4,236	—	—	114,712	7,968 H. of Hol., 15,156; Lon., 72,599; Liv., 26,957.
Waimana	14/4/34 29/5/34	—	—	—	—	—	—	—	—	—	37,444	—	37,444	— Lon., 11,562; Rio de Jan., 15,025; Monte Vid., 10,857.
Otalo	20/4/34 30/5/34	—	—	—	—	—	—	—	—	—	85,709	3,966	85,709	3,966 Lon., 13,987; Liv., 56,763; Glasgow, 14,959.
Tasmania	12/4/34 31/5/34	—	—	—	—	163,491	5,155	—	4,846	—	—	—	163,491	10,001 Lon., 94,701; Brem., 26,467; Liverpool, 42,323.
Strathaird	30/4/34 1/6/34	12	495	—	6,677	—	—	—	894	—	—	—	12	8,518 London, 12.
Otrá	18/4/34 3/6/34	—	—	—	16,818	78,089	—	—	—	—	—	—	94,907	— Lon., 70,624; Liv., 24,283.
Nawasota	21/4/34 3/6/34	—	—	—	—	145,971	7,679	53,572	—	—	—	—	199,543	7,679 Hull, 40,844; Lon., 58,341; Hamburg, 100,358.
Largs Bay	30/4/34 5/6/34	—	—	—	9,889	63,728	—	9,715	—	—	—	—	83,332	— Hull, 29,575; Lon., 53,757.
Port Huon	28/4/34 5/6/34	—	—	—	—	82,775	7,163	—	—	—	—	—	82,775	7,163 P. Said, 320; Malta, 450; Lon., 38,037; Hamburg, 21,660; Liv., 22,308.
Orestes	21/4/34 5/6/34	—	—	—	5,716	—	—	10	16,169	—	—	—	56,887	— Liv., 32,103; Glas., 24,784.
Port Gisborne	20/4/34 6/6/34	—	—	—	—	34,992	—	—	—	—	—	—	36,731	— London, 36,731.
Akaroa	2/5/34 6/6/34	—	—	—	—	—	—	—	—	—	—	16,737	22,724	16,737 Southampton, 22,724.
Orama	7/5/34 7/6/34	—	—	4,181	4,819	17,223	1,773	2,536	530	4	—	—	23,944	7,122 London, 23,944.
Balnald	10/5/34 9/6/34	1,677	—	948	7,529	43,692	1,299	8,496	—	—	—	—	68,388	8,976 London, 68,388.
Norfolk	30/4/34 10/6/34	—	—	—	—	—	—	—	—	—	—	—	58,592	— Hook of Holland, 58,592.

TOTAL EXPORTS.

	1932.	1934.
	Pears.	Apples.
Tasmania	3,088,762	2,985,611
Victoria	1,444,803	724,064
West Australia	490,596	564,821
South Australia	226,416	507,062
New South Wales	395,829	69,473
Queensland	14,793	33,694
TOTALS—Australia	5,571,199	4,834,725
New Zealand	1,261,592	1,448,899
TOTALS—Australia and New Zealand.	6,832,791	6,331,624
	849,113	537,971

DISTRIBUTION OF APPLES.
Total Shipments to Each Port.

Port.	Number of Packages 1833.
London	3,145,397
Liverpool	1,255,553
Birmingham	875,541
Manchester	875,541
Hull	405,974
Glasgow	229,056
Manchester	116,704
Southampton	85,303
London	77,103
Amsterdam	59,502
Stockholm	50,415
Montevideo	46,059
Rottterdam	39,997
London	50,371
San Paulo	23,540
Valparaiso	23,540
Callao	30,512
Halifax Nova Scotia	30,512
Avonmouth	25,559
Dunkirk	18
Bremen	53,502
Amsterdam	14,335
Antwerp	7,450
Malta	—
TOTAL	6,831,624

SYDNEY || THE LEADING AUSTRALIAN MARKET FOR FRUIT

The Commonwealth Trade Port for the Pacific and Eastern Trade

THE IMPORTANCE OF SYDNEY as a market for fruit is fully recognised.

Sydney is unquestionably the biggest market in Australia for fruit. The city has a population of over 1½ millions, besides the floating population of local, interstate, and overseas visitors.

Then, apart from the fruit consumed naturally within the city and suburbs, a big distributing trade is carried on to all parts of the State.

A large quantity of fruit is produced from within the borders of the State of New South Wales, but apart from this, big quantities are imported from Queensland, Tasmania, Victoria and South Australia.

At the city market, which is situated near the central railway station an immense trade in fruit is also carried on. Under an Act of Parliament, all fruit agents are registered, and operate under a fidelity bond.

With the closing of the Bathurst-street Market and the transferring of the stands to the City Market, plus the natural increase of population and trade, there is much congestion at the markets. The extension of the markets for which plans have been drawn is eagerly awaited.

With its wide range of climate, the State of New South Wales produces practically all classes of fruit, from the tropical Banana and Pineapple in the Tweed districts to the cold climate Strawberry and Raspberry, grown in the Blue Mountains. The fruits produced include Oranges, Apples, Pears, Grapes, Bananas, Lemons, Passionfruit, Plums, Cherries, berry fruits, Tomatoes, etc.

Substantial quantities of Apples, Pears, Peaches, etc., are sent from Victoria to Sydney.

The production of vegetables is also a very considerable business. Vegetables are handled at the City Fruit Markets alongside the fruit section, and it is in the handling of these products that the congestion is acute.

From the southern Victorian districts, the growers have organised truckloads of Apples and Pears. The trade runs on consistently, from the opening of the season in January and February, and assumes added importance as the year draws on, and quantities are extracted from cool stores.

The Northern Victoria Fruitgrowers' Association consigns large quantities of Peaches—around 250,000 cases—in a season.

Peaches and other fruits are sent from other Victorian fruitgrowing districts. In addition to the large quantity sent by rail, much fruit is also sent by boat.

In order to maintain and improve the trade with Tasmania, the island State, through its State Fruit Advisory Board, has appointed a limited number of agents in Sydney to operate on its behalf. These agents have formed an association known as the Association of Selected Agents, the objects of the Association being to work in conjunction with the Tasmanian State Fruit Advisory Board for the efficient handling and marketing of Tasmanian fruits consigned to Sydney, to issue weekly market reports, supervise discharge on wharves, and generally to improve the trade. Market reports and comments on the Sydney markets are issued by the Bureau of Marketing, which is part of the organisation of the



An interior view of a section of the N.S.W. Municipal Fruit Markets.

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— AND —

L. H. Williams & Co. Ltd.

GLASGOW

PHONE MA 1363

CONSIGNMENTS ARRANGED

Telegraphic Address: "Citrus," Sydney.

N.S.W. Department of Agriculture. Weekly reports are also compiled by the market representative of the Fruit-growers' Federation of New South Wales and issued weekly by that body.

Sydney fruit merchants have organised their own Association, which is affiliated with the Sydney Chamber of Commerce.

The Superintendent of Markets is Mr. Willis J. Williams, F.C.S. (London), whose articles on the cold storage of food products in the "Fruit World" and other journals have been widely read and appreciated. Mr. Williams

was formerly associated with Dr. A. A. Brown, Chief Inspector of Foods for the Victorian Government, and is a member of the Commonwealth Board of Science and Industry Committee dealing with cold storage problems. For five years he has supervised at the Sydney Markets, and has been responsible for much improvement at this busy centre. It is no fault of Mr. Williams that the rebuilding of the vegetable section, announced to take place in 1934, has not yet commenced, for his work in this direction was completed months ago, and the hold-up has nothing to do with his Department.

New South Wales Fruit Trade.

Review of 1934 Operations.

(By Mr. P. S. Macdermott.)

Summary of 1934.

The time is now opportune to review the operations for the past twelve months.

When doing so, one fact that cannot escape attention is that, with the exception of a few varieties that are not grown in quantity, fruit prices have fallen steadily lower during the past five years.

Returns for Oranges, Mandarins, Lemons, Apples, Bananas and all stone fruits are appreciably lower than in the years previous to 1930, and at times during 1934 all the above-mentioned varieties sold on the Sydney market at values below the cost of production.

At the same time, it must be noted that well-got-up lines of good quality fruit always realised fair values.

There are many causes for the downward trend in values, some of which are:—

1. Restricted purchasing power of the consumer.
2. Lack of organisation in the industry. With organisation a more orderly system of marketing could be evolved, and by advertising and other means, consumption could be increased.
3. A greater proportion of inferior quality fruit.
4. The selling by growers and packing houses of fruit direct to the country, thus restricting the purchasing power of the country order traders on the Sydney market, with a consequent lowering of values.

There are other factors not so important as the above.

Before leaving the question of the increased quantity of inferior fruit, it should be pointed out that owing to the lower prices during the past few years, quite a number of growers have not been in a position to properly spray, feed and cultivate their orchards, and, unless values improve, conditions may become even worse in this connection.

Apples.

The crop in N.S.W. was lighter than in 1933, and unfortunately codlin moth was very active in some districts. Bad weather conditions prevented the last spraying, and a late brood caused considerable damage, and also reduced the amount available for export.

Supplies to the Sydney market from Tasmania and other States were about up to normal. Prices generally were not satisfactory owing to the weak demand.

Pears.

Pears were in lighter supply, and values were, on the whole, better than in 1933, except for Williams from Victoria, which generally arrived in from only fair to unsound condition.

Oranges.

Crops were heavier, and the wet weather experienced during most of the harvesting period affected the keeping quality.

Exports to the U.K. were the heaviest on record, but returns were not satisfactory. Some shipments arrived in only fair condition, while the market values in the U.K. were not as good as 1933.

The loss of the New Zealand market has been a tragedy to the N.S.W. Citrus growers, and the experience of the past two years should have convinced the powers that be of the necessity of doing everything possible to have the embargo lifted. It is not the amount of fruit that goes to N.Z. that is so important; what really matters is that the buying power of the merchants operating in the N.Z. trade in the past was sufficient to lift prices by 1/- to 2/- per case on all Oranges marketed in Sydney.

Export to the U.K., unless it reached very great proportions, would have little effect on market values. The fruit is packed in the country and does not come on the market, going direct to the boats and being sent on consignment.

Navels at times were in heavy supply, and sold at low values, and the average over the season would barely cover cost of production. Prices for Valencia in the early months of 1934 were good, and growers who were able to hold back their fruit did well. Valencia this season have sold at low values. In all districts a large proportion of the crop was of small sizes, and this small fruit was difficult to sell even at low rates. Indications are that prices for Valencia in the early part of 1935 will improve again, at least, for the popular sizes.

Mandarins.

Mandarins were in much lighter supply in 1934, and sold at better prices than for the past two years. Unless the New Zealand market can be again made available there is little prospect for this variety unless supplies can be kept down considerably.

Lemons.

Lemons were not in heavy supply, but returns for the bulk of the season were most disappointing. In the first few months of 1934 prices were fair, but when the main crop commenced, values went right back, and continued low until almost the end of the year.

Factories did not purchase as heavily as usual, while the prices paid were the lowest for years.

Demand for this fruit has fallen considerably.

Grapefruit.

Good quality lines sold at fair values throughout the year, but inferior sorts or outsizes were not wanted. Enquiry for this fruit is limited to a high class trade.

Bananas.

Production increased heavily during the year, and the market for many months was oversupplied, especially with small fruit. Prices during the first half of the year

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Prompt Returns

Reliable Advice

Registered Address for Telegrams and Cables,
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References:—Bank of N.S.W., Haymarket, Sydney;
and Growers throughout Australia

**City Fruit Markets
Sydney**

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were fair, but with the increase in arrivals, values over the past three or four months were probably the lowest on record, with the exception of a few weeks when supplies were lighter.

Cherries.

The season was a most unfavorable one, the wet weather and lack of sunshine being responsible for a lack of quality in the early varieties. Crops were heavy, and during the peak period values were low. Late varieties sold at improved prices, but the returns over the whole season would not be attractive.

Passion-fruit.

With the exception of about two months, when supplies were heavy, values for this variety were fair, and at times

Personal and General Notes of Sydney Fruit Salesmen.

(By "J.L.C.")

Over 200 fruit agents carry on business at these markets, and some of the firms are very long established. Among the most prominent are:—

F. CHILTON.

Mr. F. Chilton is one of the largest handlers of fruit in Sydney, and is conversant with every avenue of the



An exterior view of the N.S.W. Municipal Fruit Markets, showing location of advertisers in this issue. Note also congestion of traffic.

when arrivals were light high prices ruled. This variety is one of the few fruits that is not in heavy production.

Pineapples.

The modified control in the marketing of Pines is reflected in the generally better returns, as compared with other fruits. At times there was an oversupply, and prices were low, but, over the whole twelve months, prices were fair to good. When production was heaviest, large supplies were diverted to the canners, thus stabilising prices on the market.

Stone Fruits.

Conditions applying to Plums, Apricots and Peaches were so similar that they may be dealt with together. The demand for these fruits was confined to choice large samples, and anything inferior or small was difficult of sale. All varieties were affected by fungus diseases, and the generally poor keeping quality undoubtedly restricted the demand. During the past few years brown rot and other fungus diseases have taken heavy toll of all stone fruits. With satisfactory canning prices, supplies of Apricots and Peaches are expected to be lighter on the Sydney market in the next month or two.

Grapes.

Supplies of Grapes were heavy, and prices generally were low. The demand from shippers for Ohanez was not as firm as usual.

trade. He takes a keen interest in all matters relating to the marketing of fruit of all kinds, and as a judge of fruit has few equals. He is held high in the esteem of growers and his fellow merchants, and when Mr. Chilton makes a statement regarding the industry, it may be regarded as authentic. His business extends to all parts of the Commonwealth, and his name is known to growers in even the remotest fruitgrowing areas from Southern Tasmania to the north of Queensland. A fair deal to both grower and buyer has earned for him a reputation that one may be proud of.

Mr. Chilton started as a lad helping to clear virgin bush, then to plant an orchard, doing the various work connected with cultivation, spraying, pruning, etc., then, after several years' experience in marketing own grown fruit, he started as a commission agent in the old Belmore markets in 1894. He has been actively engaged in the business of selling growers' fruit and exporting ever since.

The distributing section of the business is carried out in premises apart from the market by a separate staff.

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The commission section is carried on at No. 10 Municipal Markets under the provisions of the Farm Produce Agents Act.

* * * * *

A. J. COOPER.



Mr. A. J. Cooper.

Mr. A. J. Cooper is one of the old school of fruit merchants, with a very extensive knowledge of the industry. For many years he has taken an active part in all matters of interest to the trade, and has held many important posts. A standard of trade has been set up by this merchant and he will not accept fruit for sale from growers which does not come up to the required standard. A strong advocate for the more efficient handling of fruit, he has been endeavoring for years to bring about better facilities at the fruit market, and he will welcome the change that will come with the building of new markets for the vegetable section. Mr. Cooper's business has been established for over 40 years, and besides handling fruit from all States, is an exporter and importer of fruits.

* * * * *

W. MUSGROVE.



Mr. W. Musgrove.

Mr. Walter Musgrove is another agent whose reputation for integrity is known throughout the Commonwealth. From early youth, Mr. Musgrove has been engaged in the marketing of fruit in N.S.W., and there is little left for him to learn in the trade with which he has for so long been associated. As a member of the fruit section of the Chamber of Commerce, of which he has twice been chairman, he takes an active part in its affairs, and his experience has

proved invaluable to that body. He is an ex-Chairman of the N.S.W. Fruit and Vegetable Agents' Association, and one of the agents selected by the Tasmanian Fruit Advisory Board. He has been a J.P. for over 25 years. Established in 1900, in the old Belmore market, the firm quickly gained the confidence of growers. They were among the first to occupy premises in the City Markets when they were first built and they have been located in Store No. 8 there ever since. The position is a convenient and this, combined with the energy of Mr. W. Musgrove and staff, has resulted in an ever-increasing clientele.

Supplies come from growers from nearly all the States of the Commonwealth. The firm has adopted for trade practice—"Sell Quickly and Pay Promptly." Growers visiting Sydney are very welcome at the stand of Messrs. Musgrove and Son, who are licensed under the Farm Produce Act of New South Wales, and guaranteed by a fidelity bond.

* * * * *

PRODUCERS' CO-OP. DISTRIBUTING SOCIETY LTD.

Mr. J. W. Blick, manager of the fruit section of the Producers' Distributing Society, is a well-known figure in the fruit trade of N.S.W. He is a big man in every sense of the term and is prominently associated with every aspect that makes for the better marketing of fruit, not

only in Australia, but in other parts of the world. He has spent a considerable time abroad studying world markets, and has long been urging shipping companies to provide better facilities for the carriage of fruit abroad. Many markets are neglected owing to lack of refrigerated space, and Mr. Blick is convinced that more of our fruits would be consumed in the intermediate ports, Bombay, Suez, Port Said, etc., if adequate refrigerated space were available.

In 1925 Mr. Blick was chairman of the fruit section of the Chamber of Commerce, and at the present time is on the Executive of both the Apple and Pear Export Council and N.S.W. Citrus Packers' Association.

The Melbourne office of the P.D.S. is located at No. 7 Wholesale Fruit Market, where a substantial business is transacted. The manager is Mr. J. McNamara, under whose personal supervision all sales are conducted.

* * * * *

MACDERMOTT & SHEEDY.



Mr. Macdermott.

Although this firm started operations at the City Markets as recently as 1931, they have made giant strides in the marketing of fruit, and represent several of the largest fruit handlers in the United Kingdom and the Continent of Europe. Mr. Macdermott was formerly manager of the Gosford packing house for many years, and has held other important posts in the fruit trade before starting operations at the markets. He has represented the N.S.W. growers at

several conferences, has studied market requirements abroad, and his keen interest in organised marketing makes him thoroughly fitted to handle the produce of the grower. The firm is one of the largest exporters of citrus, and prior to the embargo were the largest shippers to New Zealand, and have since been prominent in the negotiations with the N.Z. authorities. Mr. Sheedy has practical experience of the growers' side at Niagara Park, near Gosford, where his father has a large orchard, and the experience thus gained has proved invaluable in marketing of the fruit sent in by growers.

* * * * *

F. H. G. ROGERS.



The firm of F. H. G. Rogers was established on the Sydney market thirty-three (33) years ago, and is one of the oldest firms in the Sydney fruit trade.

The founder of the firm, Mr. F. H. G. Rogers, died in 1924, and for the past nine (9) years the business has been very successfully carried on by his eldest son, Mr. K. E. V. Rogers.

The late Mr. F. H. G. Rogers arrived in this country from England when a young man and purchased two orchard properties at Castle Hill, which was then the largest fruitgrowing district in New South Wales.

About the year 1895, the Farmers' and Settlers' Co-operative Society was formed in Sydney and the late Mr. Rogers was appointed manager of the fruit section. After holding this position for five years, he commenced business on his own account and established the firm which still bears his name, in the year 1900.

TELEPHONE: MA 3846

ESTABLISHED 1900

W. Musgrove & Son

Licensed Farm Produce Agents

8, City Fruit Market, Sydney

REFERENCE: BANK OF NEW SOUTH WALES, HAYMARKET

Our Motto : Quick Sales and Prompt Settlements.

YOU WILL BE SATISFIED BY GIVING US A TRIAL

FORWARDING NUMBERS:

TASMANIA, VICTORIA, SOUTH AUSTRALIA

No. 53

QUEENSLAND, NORTHERN RIVERS

No. 18

GROWERS! Consign your Fruit to

JAMES SLATER

Licensed Farm Produce Agents

21 City Markets . . . SYDNEY

Postal Address: Box 36, Haymarket, Sydney.

Established 1882.

Bank Reference: Commercial Banking Co. of Sydney, Haymarket.

CHEQUES RENDERED WEEKLY.

SPECIALIST IN STRAWBERRIES & ALL OTHER CHOICE
FRUITS. ALL VICTORIAN FRUITS AND NUTS HANDLED TO
--- BEST ADVANTAGE ON THE SYDNEY MARKET. ---

Shipping No. 19

Stencils, Advice Notes, etc., on Application.

Phones: MA 2920 and LW 3811.

From a very small beginning, the business has expanded year by year, and the firm now handles large quantities of fruit from all over Australia.

The firm of F. H. G. Rogers are selected selling agents for the Tasmanian State Fruit Advisory Board, the Northern Victorian F.G. Association, and the Bowen (Q.) Fruit Export Association.

The present proprietor, Mr. K. E. V. Rogers, came into the firm with his father sixteen (16) years ago, and has had a wide and varied experience in the handling and distributing of all varieties of fruits on the Sydney market. He is carrying on the business under the same traditions and efficient manner as his predecessor, and is held in the highest esteem by growers throughout the Commonwealth.

JAMES SLATER.



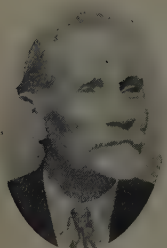
The late
Mr. James Slater.

Mr. Alfred Slater, who has charge of the old-established business of James Slater, has been in command since the death of his father, the late James Slater, who died in 1914. He has been a prominent figure in all matters relating to the trade and has held many prominent positions in this regard. The firm, which was established in 1882 in the old George-street Fruit Market, has clients in all States who supply them with fresh fruits for the

N.S.W. trade. They handle enormous quantities of berry fruits and also do a large business in tropical and other fruits.

The firm is one of the oldest-established in the Sydney trade, and has rendered satisfactory service to growers over a long period of years. They gained prominence through the handling of berries and tropical fruits such as Bananas, Pineapples, Papaws and Custard Apples. This firm, specialising in a town trade, is in a favorable position to place these lines to advantage. Cheques are rendered weekly and all goods are sold under the personal supervision of Mr. Alfred Slater.

J. W. KIRKWOOD.



Mr. J. W. Kirkwood.

Mr. J. W. Kirkwood has been connected with the fruit industry for 27 years, first as a grower in Tasmania, where the Kirkwood family have extensive orchard property, and later as a buyer, salesman, and commission agent at the Sydney Markets. For the past 16 years Mr. Kirkwood has been in business as a growers' agent at the City Markets, and has established a fine business, owing to his intimate knowledge of the trade, and the confidence with which he is regarded by growers.

L. SMITH.

Mr. L. Smith is one of the younger agents who has already made a name for himself in the marketing of

fruit at the Sydney Markets. He has been a grower, and this experience has been valuable to him. He receives the bulk of his supplies from N.S.W., but also receives a fair share of the interstate trade. A special line with him is Passionfruit, and the manner in which he has handled this class of fruit has earned him the congratulations of many growers. Last season he disposed of 2,500 cases from one grower of Passions, and the prices obtained proved very satisfactory to the grower.

* * * * *

MESSRS. JOHN JENKINS.

Business, or anything else, will not remain stationary, either progress is made or matters slide backwards.

Progress, and still further progress, is the chief characteristic of the firm of Messrs. John Jenkins. Under the capable guidance of its three principals—Messrs. L. J. Jenkins, E. A. Jenkins and G. E. Jenkins—supported by an ample and able staff the business of the firm has increasingly developed, it holding premier place in fruit sales distribution in Sydney.

Every phase of the fruit business is studied carefully. Keenness of attention to all details is a marked characteristic. Promptness of advice of markets and in rendering account sales and making payments of any nature places this firm in the highest esteem.

Messrs. John Jenkins are renowned for the high values consistently obtained by them, and for their ability to dispose of the largest parcels without any lessening of value. Anyone desiring to open up business with them will find all principals courteous and keenly interested.

The firm operates in various parts of the City Markets, their ramifications cover every possible avenue of outlet, Interstate, New Zealand and overseas. Their sufficient address is—Messrs. John Jenkins, City Markets, Sydney.

* * * * *

ASSOCIATED GROWERS' SELLING AGENCY.

Mr. Bruce R. Smith, proprietor of the Associated Growers' Selling Agency, at the Sydney Fruit Markets, has a lengthy experience in the wholesale marketing of fruit.

Commencing as an orchardist, and then joining P.D.S., with whom he stayed for about 10 years before taking over the management of the Associated Growers' Selling Agency, and again continuing the managership of this organisation during the period of its recent affiliation with P.D.S. Now as owner of the business created by himself he has the service of an exceptional team of sale experts dealing with consignments from districts throughout Australia and Tasmania.

A.G.S.A. and Bruce Smith are names associated with "pack improvement" of fruit with growers of Queensland, Tasmania and New South Wales. The majority of growers have welcomed the advice he and his organisation have given in better grading, packing and marketing of their products.

* * * * *

MESSRS. WARD & FELTON.

In 1904 Mr. A. C. Ward was induced by a few N.S.W. growers to undertake the sale of their produce in the Fruit Exchange, Bathurst-street, Sydney. Gradually the business was extended, until it embraced clients in Tasmania, Queensland and Victoria, in addition to an increasing number of local growers. The joining up of Mr. L. Felton

BEST WISHES FOR 1935 TO ALL

Growers!

If at any time you require an Agent in Sydney or are considering
a change of Agents, or intend dividing your Sydney consignments

CONSIGN TO—

JOHN JENKINS

City Markets - Sydney

Who have maintained a position of trust since 1847 and have been
proven sound and efficient.

May we have the opportunity of adding you to our number of
satisfied growers who are happy to recommend us.

SUFFICIENT ADDRESS—

JOHN JENKINS, Fruit Markets - - SYDNEY

Established 1904.

**IF You Look
For Miracles**

We do not propose
. . . to supply them

But if 30 years' progressive experience—plus a reputation for fair
dealing and promptitude—appeal to
you, then consign your produce to

WARD & FELTON

City Municipal Markets, Sydney

Phone: MA 2810. . . After 7 p.m.: UJ 3827.

Shipping No. 188.

J. W. KIRKWOOD

**Licensed
Farm Produce Agent**

EXPERIENCED FRUIT SALESMAN.

27 YEARS CONNECTED WITH
— THE FRUIT BUSINESS —

Seven Years as Grower in Tasmania.

Four Years as Buyer and Salesman at Sydney
Markets.

Sixteen Years as Commission Agent.

Growers who have been sending for 16 Years
still sending fruit to me and still satisfied.

WHAT OTHER RECOMMENDATION DO
YOU WANT?

— Give Me a Trial. —

J. W. Kirkwood

5 CITY MARKETS, ULTIMO RD., SYDNEY.

Tel., MA 3162.

Ship No. 191.

added to the firm's effectiveness on behalf of clients, and presently the business overflowed to the City Municipal Markets. Here increase in volume necessitated enlargement of premises (twice), and ultimately the entire business was transferred to the present location, at the City Markets. The coming in of Mr. L. E. Ward (son of the founder) equalised office management to salesmanship, hence, to-day a combination in staff and a regular clientele of buyers worthy of the patronage of growers throughout the Commonwealth.

* * * * *

MOSS & WOODWARD.

Although this partnership has only been recently established, both members of the firm have had years of experience in the fruit trade. The senior partner (Mr. Woodward) has had practical experience of fruit growing, and, prior to joining up with Mr. Moss, was director of one of the largest firms in the trade at the City Markets. In their first year of business at the markets the partnership handled the third largest supplies from the Goulburn Valley, and have worked up a fine Interstate trade.

* * * * *

H. J. GREENTREE.

Mr. H. J. Greentree has been engaged in the wholesale distribution of fruit since 1920, and during that time has, by sound business methods, worked up a fine business. At the Sydney Fruit Markets, where he is now established, he is constantly adding to his list of grower clients in N.S.W., Queensland, and Victoria. He is a popular young man because of his selling ability, and growers feel that they can send along consignments with confidence in his ability to obtain the best prices offering.

* * * * *

H. BLACK & SON.

Mr. Roy Black, who now controls the business of H. Black & Co., has been identified with the firm all his life, and when his father retired in 1926, assumed charge of the firm's affairs. He enlisted in 1915, and remained on active service until the war terminated. He has a first-hand knowledge of fruit growing, for the family of the late Mr. Henry G. Black has long been engaged as orchardists at Dural, in the Cumberland district. Knowing both ends of the business, it can be readily seen that Mr. Roy Black is a competent man to handle the produce of other growers as well as those of his own family. The firm has an extensive clientele in N.S.W. and adjacent States.

* * * * *

C. Geo. Kellaway & Sons Ltd.

The firm of C. Geo. Kellaway & Sons Ltd., hold a favorable position at the City Markets, where they distribute all classes of fruit and produce from local and interstate orchards. Their good city and country connections, together with the fact that the firm are large exporters, gives them an excellent outlet for all fruits consigned to them.

Mr. Kellaway, senior, has three sons in the business with him, and growers can be satisfied that their interests will always have the personal attention of the firm. Mr. Kellaway is a member of the fruit section of the Chamber of Commerce and fully alive to the requirements of the trade.

Mr. J. G. R. Bryant has taken offices at Haymarket Chambers, Hay and George streets, where he transacts his business as a fruit agent, in addition to his stand at the City Markets. Mr. Bryant is a buyer for Major Dakin,

who represents the well-known English firm of Geo. Monro in Sydney. He has had a lengthy experience in the fruit trade, and growers will be assured a fair deal at his hands.

IMPROVING THE PACK.

In the remarkable improvements that have been made in the packing of Australian fruit for export and the home markets in recent years, Gerrard Wire Tying Machines Co. Pty. Ltd. has been closely associated with growers and all others who have been responsible for that advance in packing.

The Gerrard Company publishes detailed fruit packing charts for Apples, Pears and Oranges for free distribution to those interested in the industry. These charts have been prepared from data supplied by the Horticultural Branches of the Department of Agriculture in several States, and are recognised as reliable and helpful packing guides.

In addition to the provision of packing charts, the Gerrard Wire Tying Machines Co. Pty. Ltd. employs expert packing instructors who work with growers and their packers on the orchard to assist toward "Better Packing."

Packing instruction classes have been held at central points by Gerrard instructors and have been well attended.

The Gerrard fruit packing service is free and, so far as the ground can be covered, is available to all fruitgrowers without obligation other than an interest in fruit packing improvement.

Instead of spending a lot of money on ordinary advertising, the Gerrard charts and the packing instruction service is provided with one objective: "Better Packing."

C. Geo. Kellaway

And Sons Ltd.

Fruit and Produce Salesmen

and GENERAL AGENTS

No. 42, City Fruit Markets SYDNEY

Bankers: Bank of Australasia.

All classes of Fruit and Produce sold to best possible advantage. Country and Shipping Orders promptly despatched.

Write for Further Particulars.

Experience Counts—

Good Intentions won't make up for Lack of Knowledge

Established 50 Years

T. Stott & Sons

26 Wholesale Fruit Market, Melbourne

(And at Victoria Market)

GROWERS PROTECTED BY FIDELITY BOND.

ESTABLISHED 1882

SHIPPING
NO.
41

TELEPHONE: F 4370

PROMPT SETTLEMENT.

Country and Interstate Order Trade Supplied.
Stencils or Labels sent on Application.

Telegraphic Address: "Stottsons, Melbourne."

Bankers:
Bank of Australasia, Collins Street, Melbourne.

J. H. Young & Co. Pty. Ltd.

R. GORDON, Managing Director

Growers' Agents

Highest Prices and Prompt Returns.

OUR MOTTO:

"We Strive to Please"

Growers Protected by Fidelity Bond.

No. 32,
**Wholesale Fruit Market
Melbourne**

BANKERS:

E. S. & A. Bank, Elizabeth Street,
Melbourne.

Shipping No. 48

Postal Address: Box 417, G.P.O.



Marketing Fruit in Melbourne.

Consignments of Local and Interstate Fruits Increasing.

MELBOURNE'S WHOLESALE FRUIT TRADE.

Review of Operations and Prices Ruling for the Twelve Months Ending December, 1934.

The Melbourne Wholesale Fruit Market can justly claim to be the most modern, spacious and up-to-date fruit market in Australia. Ample space is available to display fruit to the best advantage, and the brick stores provide excellent storage facilities; ample parking space has also proved a boon to buyers.

Increased supplies of fruit and vegetables from Victorian districts and practically every State of the Commonwealth are now being sent to the Melbourne Markets.

Bananas, Pineapples, Custard Apples, tropical fruits, Cucumbers, Tomatoes and Beans come from Queensland; Oranges, Mandarins, Cherries, Bananas and Passion-fruit from N.S.W.; Oranges, Grapes, Tomatoes and Celery from South Australia; Tomatoes from Western Australia, also Apples when there is a short crop in the Eastern States, and Apples, Pears and berry fruits from Tasmania.

It was anticipated that the year just closed, being the Melbourne Centenary Year, would have increased the demand for fruit and prices accordingly. The increased demand, however, was offset by the arrival of larger quantities of fruit from all sources, and the earlier prospects did not quite come up to expectations.

We set out hereunder a short review of the market operations for the twelve months, together with prices realised for various fruits each month.

January.

During this month Plums, Peaches and Apricots were in full supply, the last-mentioned finishing towards the end of the month. Early Pears from the Goulburn Valley and southern districts also appeared. Nectarines sold in January for a few weeks, and Grapes began at the end of January and ran on until May. Oranges, mainly from cool store, Grapefruit and Lemons, were also available. Weather conditions have a big effect on prices, and dur-

ing the past few years the changeable weather has not been conducive to seasonable demands for what are known as summer fruits.

The latter years have also seen big developments in the erection of ripening rooms by individual agents, with the result that Bananas are available practically all the year. Further provision was made in this respect during 1934 by the Committee of Direction of Fruit Marketing, Queensland, who installed adjacent to the fruit market, an up-to-date, well-equipped ripening plant. Prices for fruit offering during this month were as follows:— Apples (eating), 6/- to 9/-; cooking, 6/- to 7/6; Apricots, 2/- to 6/-; Cherries, 4/- to 8/-; Papaws, 6/- to 9/- double case; Pears, 6/- to 10/-; Plums, 2/- to 6/-; Bananas (Queensland), 6's and 7's 7/- to 10/-, 8's and 9's 11/- to 14/-; Pineapples 8/- to 12/- double case; local Tomatoes, 3/- to 6/-; Citrus: Val. Oranges, according to counts, 5/- to 8/-; Passionfruit 22/- half-case; Peaches 6/- to 8/-; Pears 5/-; Persimmons 12/-; Pineapples 14/-; Plums 3/- to 4/-.

February.

During February, Victorian Tomatoes were still in full supply, also early Apples, such as Williams Favorite and Gravenstein, Pears, Oranges ex. cool store, Grapes and Peaches, and practically all the other fruits referred to during January. Prices were as follows:—Apples: Eating, 3/- to 5/-, cooking 2/- to 3/-; Bananas, according to sizes, 6/- to 14/-; Lemons 5/- to 9/-; Oranges 4/- to 11/-; Grapefruit 8/- to 12/-, specially selected 16/-; Pears 5/-; Peaches, Yellow Clingstones, 3/- to 5/-, Elbertas 3/- to 4/-; Passion-fruit 5/- to 7/-; Pineapples 8/-, best counts up to 12/-; Tomatoes 3/- to 6/-; Plums 1/- to 3/6; Grapes, early sales 12/- to 14/-, with prices easing as further supplies arrive.

March.

Tomatoes were still available, and also new season's Apples in quantities, Pears, Peaches and most other fruits. Prices were as follows:—Apples: Eating 2/6 to 5/-, cooking 2/- to 4/6; Bananas double case 8's and 9's 17/- to 18/-, 7's 15/- to 16/-, 6's 12/- to 14/-; Grapes 3/- to 8/-;



The Melbourne Wholesale Fruit Market, showing its spacious lines and up-to-date construction.

Half a Century
of Reputable Trading
Stands to the Credit of
J. DAVIS PTY. LTD.

Fruit Merchants

No. 8, Wholesale Fruit Market, Melb.

ACCREDITED AGENT FOR—

Victorian Central Citrus Association Pty. Ltd. ——— Murray Citrus Growers' Co-operative Association Ltd.

GROWERS ARE INVITED TO SEND THEIR PRODUCTS WHICH WILL BE
ASSURED HIGHEST RULING RATES. AND YOU ARE PROTECTED BY
FIDELITY BOND LODGED WITH DEPARTMENT OF AGRICULTURE (VIC.)

Cable Address: "DAVIS," Melbourne.

Codes: "ABC," 4th and 5th Editions.

All Correspondence to Box 148B.

Telephone: F3232.

Bankers: The National Bank of Australasia,
Collins Street, Melbourne.

Telegraphic Address: "Listeria," Melbourne.

Codes: Bentley's A.B.C., 5th Edition.



Postal Address: G.P.O. Box 555D.

Telephone: F 6341.

Private: Windsor 4535.

GEO. LISTER Pty. Ltd.

(Managing Director: J. R. VAIL)

Wholesale Fruit Merchants

Licensed Commission Agents

Importers and Exporters

Selected Agents for all Growers' Organisations throughout the Commonwealth.

**No. 12, Wholesale Fruit Market
Melbourne**

Having carried on a successful business for over half a century, our name stands high in the Wholesale Fruit Trade of Australia. Our spacious premises at Melbourne Wholesale Fruit Market are admirably adapted for the conduct of our large business, and growers are assured that our best efforts are always at their disposal.

Bankers: The Commercial Banking Co. of Sydney, Melbourne Branch. Fidelity Bond Guaranteed by I.O.A. Insurance Co.

Peaches, 3/- to 5/-; Lemons, 6/- to 9/-; Passion-fruit 4/- to 7/-; Pineapples 7/- to 9/-, few best counts 10/- double case; Pears 5/- to 7/-; local Tomatoes 5/- to 9/-, Portland Tomatoes realised 7/- to 10/-, special lines 1/- to 2/- higher; Valencia Oranges according to counts 6/- to 12/-; Lemons 8/-.

April.

This month resulted in a plentiful supply of local Apples and Pears, Passion-fruit, second crop Strawberries, Mushrooms and most other fruits. Prices were as follows:—Apples: Eating 2/6 to 5/6, cooking 2/- to 4/6; Bananas 8's and 9's 15/- to 16/-, other sizes 10/- to 14/-; Grapefruit, Queensland 10/- to 12/-; Grapes 4/- to 9/-; Lemons 6/- to 9/-; Queensland Mandarins 10/- to 12/-; Queensland Jaffa Oranges 6/- to 7/-; new season's Navel Oranges in small quantities up to 13/-; Passion-fruit 4/- to 8/-; Pineapples 7/- to 9/-; Pears 4/- to 7/- Tomatoes 4/- to 9/-; Adelaide Celery from 8/- to 10/-; Custard Apples 4/- to 5/- half case.

May.

Apples: Sales were steady during this month, and prices were temporarily inclined to rise. Eating varieties 3/- to 7/-, cooking 3/- to 6/6; Custard Apples 4/- to 5/- half case; Persimmons 3/- to 4/- half case; Grapes 6/-

specials slightly higher; Lemons 3/- to 6/-; N.S.W. Mandarins 4/- to 6/-; Victorian and Queensland 8/- to 10/-; N.S.W. Oranges 4/- to 7/6, specially selected wrapped standards up to 8/6; Grapefruit 7/- to 9/-; Pines 7/- to 8/-; Pears 4/- to 7/-; Papaws 10/- to 12/-; hothouse Tomatoes up to 15/- half case.

July and August.

During these months Oranges were available in large quantities from all States, and prices were reduced owing to large quantities available, Navels realising only 4/- to 7/- for standard grades according to sizes, some specially selected wrapped fruit bringing up to 10/-. Cold store Strawberries arrived from Queensland, also Tomatoes from that State. Prices for other fruit were as follows:—Apples: Eating 4/- to 6/-, cooking 3/6 to 5/-; Bananas 10/- to 15/-; Lemons 4/- to 5/-; Mandarins 5/- to 8/-; Passion-fruit 14/- to 20/-; Pines 7/- to 8/-; West Australian Tomatoes did not arrive in as good a condition as the previous year, and prices for repacked fruit were from 7/- to 8/-; Adelaide Celery 7/- to 9/-.

September.

In addition to other fruits, Cucumbers and Tomatoes arrived from Queensland, also Western Australian and Sth.



A Busy Scene in Melbourne's Wholesale Fruit Market.

to 10/-; Washington Navels, standards including N.S.W., 6/- to 7/-, Mildura and Sth. Australian 8/- to 9/-, unwrapped, specially selected, wrapped fruit 10/- to 11/-; Lemons 6/- down to 3/-; Grapefruit 7/- to 8/-, special up to 10/-; Queensland Mandarins 8/- to 10/-; Vic. Reds 11/- to 12/-; N.S.W. 9/- to 10/-; culinary Pears 3/- to 7/-, dessert 3/- to 7/-.

June.

Navel Oranges, Mandarins, Lemons, Apples, Pears (ex. cold store), Pines, Bananas, Passions and other fruits are available during this month. Passion-fruit, which is available on and off throughout the year, generally reach their highest price during this month. Up to 20/- per case was paid, while some special lines brought even higher prices than this. Prices for other fruits were as follows:—Apples: eating 3/- to 6/-, cooking 2/6 to 5/-; Bananas double cases 8/- to 14/-, special lines higher and faulty lines lower; Adelaide Celery 6/- to 9/-, according to quality; Grapefruit 5/- to 8/-; Grapes 4/- to 8/-, spe-

Australian Tomatoes. Although Victorian hothouse Tomatoes were also on the market, good prices were realised as follows:—Vic. hothouse 12/- half case; W.A. 7/- to 9/-, special higher; Sth. Aust. 14/- to 16/-. Prices for other fruit were as follows:—Apples: Eating 4/- to 6/6, cooking 3/6 to 6/-; Bananas 8/- to 13/-; Adelaide Celery 7/- to 9/-; Grapefruit 4/- to 10/-; Lemons 4/- to 5/-; Mandarins, N.S.W. and Vic. 4/- to 7/- case; Navel Oranges, average standard 3/6 to 5/-, selected standards 6/- to 8/-, few special wrapped up to 10/-; Passion-fruit 14/- to 24/-; Pines 7/- to 8/-; Papaws 8/- to 11/-; Emperor Mandarins 3/- to 7/- according to counts.

October.

Practically the same fruits as September were available this month, with the addition of Grapefruit and Pumpkins from Queensland. Prices for all fruits were approximately the same as September. Queensland Cucumbers brought 4/- to 6/- case, Grapefruit 4/- to 10/-.



Fruit Growers



THROUGHOUT
AUSTRALIA

Send Your Consignments for Sale in Melbourne to:—

F. CAVE & CO. PTY. LTD.

Licensed Farm Produce Agents

Store: No. 9, Wholesale Fruit Markets
Melbourne

Postal Address: Box 1956 G.P.O. Melbourne, C.1.

Interstate Shipping No. 65

Apple and Pear Growers

You are assured of the very best possible market for your
OVERSEAS CONSIGNMENTS
by Shipping under Our Registered Brand:—



To Our Distributors throughout Great Britain and the Continent
of Europe

**This Complete Overseas Organization
is at Your Service**

Telegraphic Address: "CAVECOFRUT," Melbourne

Telephones: { During Office Hours, F 3930
After Office Hours, X 3264

CORRESPONDENCE INVITED

November.

Mandarins were finished at the end of November, also Apples, except for cold store varieties. Local and Adelaide Cherries arrived during this month and realised up to 13/- half case; Cucumbers from Queensland showed a marked increase in price during this month, and brought from 14/- to 18/-; Early Apricots realised 6/- to 9/- case; Cherry Plums 3/- to 5/-; Loquats 4/- to 5/- half case; Mangoes 8/- to 10/-. Prices for best quality selected Navel Oranges moved up slightly, and brought up to 10/- per case; Bananas 6/- to 10/-; Pineapples 12/- to 16/-; Papaws 8/- to 10/-; new season Peaches 6/- to 10/- half case. Local Tomatoes 12/- to 16/-; Sth. Australian 10/- half case.

December.

Cherry Plums, Victorian Tomatoes, Apricots and Peaches came forward in fair quantities this month, and prices dropped as a result, Peaches bringing 2/- to 5/-; Apricots 4/- to 7/-; Cherry Plums 1/- to 2/-; early green cooking Apples also arrived during this month. Prices for other fruits were as follows:—Apples: Eating 4/- to 6/-, selected varieties 8/- to 9/-, cooking 3/6 to 6/-; Bananas 11/- to 12/-; Grapefruit 7/- to 12/-; Val. Oranges 4/- to 11/- Pineapples 9/- to 14/-; Tomatoes 4/- to 7/-; Mangoes 8/- to 10/-.

Some Melbourne Fruit Salesmen.

T. STOTT & SONS.

This business was established over 50 years ago by the late Mr. Thomas Stott, who was one of the oldest and most respected members of the Melbourne wholesale fruit trade. On the death of Mr. Thomas Stott in 1925 the business was taken over by his three sons, who had already spent many years helping to develop the business by methods that have proved satisfactory and reliable to growers and buyers.

Throughout the trade this confidence has been a big factor in the steady growth of the firm's business.

All sales of fruit are conducted under the personal supervision of the principals, and prompt advices and returns are sent to growers.

Messrs. Stott & Sons have a regular circle of buyers in the metropolitan and country districts, who look to the firm to supply not only fruit, but all classes of vegetables, including Peas, Beans, Cucumbers, Tomatoes, etc.

J. DAVIS PTY. LTD.

This is one of the oldest firms in the Melbourne wholesale fruit trade: they are located at Store No. 8 in the Wholesale Fruit Market. The business was established 50 years ago by the late Mr. Joseph Davis—a man of considerable force of character, who was held in high esteem by growers and traders alike.

The firm established a sound reputation, winning the confidence of growers and buyers. A big trade has been worked up with country and interstate buyers.

The Citrus trade has always been a big feature in J. Davis' business, and as one of the accredited agents of the Victorian Central Citrus Association, they handle big consignments from all the leading Orange growing centres.

The business is now efficiently administered by Mr. H. J. Davis—a son of the founder—and with him is associated Mr. R. F. Aldridge.

J. HYMAN & SON.

51 Wholesale Fruit Market, Melbourne, have a large and growing business. The principal, Mr. J. Hy-



The consignments of Bananas to Melbourne markets are increasing each year.

man, has been connected with the trade for over 30 years. They have ample space for handling large quantities of fruit and vegetables for, in addition to their market stand, they have a bulk store with ripening rooms at 454 Queen-street, Melbourne. In addition they have more space for displaying fruit and vegetables under cover at their market stand, which faces the market quadrangle. Associated with Mr. Hyman Senr., in the business is his son, H. Hyman.

FRANK BOOTH & SONS PTY. LTD.

The firm has been carrying on business in the Western Market for 18 years. In their stand at No. 16 in the Wholesale Fruit Market, with a frontage to Franklin-street, and the market square, they have ample space. The business was established by the present principal, Mr. Frank Booth, who has been connected with the fruit trade for over forty years.

Mr. Booth's two sons are associated with him in the business, Mr. George Booth having been with him for 18 years. His other son, Mr. J. Booth, joined up with

SILK BROS.

PTY. LTD.



The Largest Handlers

— OF —

**Fruit and Vegetables
in Australia**



*Growers Protected by
Fidelity Bond.*



**MELBOURNE: Store 24, 25, Q.V. Markets
Shipping No. 39**

PHONE: F 6136-6137.

**SYDNEY - - - City Markets
Shipping No. 37**

PHONE: MA 4962.

**ADELAIDE - 286 Rundle Street
Shipping No. 16**

PHONE: Central 873.

Consign Your Fruit to **FRANK BOOTH & SONS**

PTY. LTD.

WHOLESALE FRUIT MERCHANTS

**No. 16
Wholesale Fruit Market
Melbourne**

Established Over 20 Years

Each and every consignment is sold under the personal supervision of the principals and account sales and returns forwarded promptly.

Accredited Selling Agents for V.C.C.A. and M.C.G.C. Assoc., C.O.D. of Q'land, and the S.A. Tomato and Celery Growers' Association.

Postal Address: Box 4065,
G.P.O., Melbourne.

PHONE:
F 3933.

G. WOOLF & SONS

PTY. LTD.

Wholesale Fruit Merchants

**29-30 Wholesale Fruit Market
Melbourne, Victoria**

Established Over 40 Years

CONSIGNMENTS OF ALL CLASSES
OF FRUIT SOLICITED.

All Sales conducted under the Personal
:: Supervision of the Principals. ::

ACCOUNT SALES & CHEQUES FORWARDED
PROMPTLY.

Accredited Agents for the V.C.C.A. & M.C.G.C.A.

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Telegraphic Address:
"WOOLFSON"
Melbourne

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Box 692E.
Melbourne

him on his return from the Great War, where he was five years on active service.

The firm are accredited selling representatives for the V.C.C.A., and the Murray Citrus Association. Their business, however, is not confined to the handling of Citrus fruits, as they also handle large quantities of Apples, Bananas, Pineapples, Pears, Tomatoes, Cherries, and other fruits when in season.

Mr. Booth, senior, is well known and respected by both growers and buyers, and his genial manner has earned for him many friends in the trade. His sons are carrying on the business on similar lines to those employed by himself, and their advice and experience is always at the service of growers.

* * * * *

J. H. YOUNG & CO. PTY. LTD.

One of the best known firms in the fruit trade, this business was established by the late Mr. J. H. Young, who was formerly a fruit grower at Tyabb, Victoria, twenty-four years ago.

Mr. Young's intimate knowledge of the growing and selling of fruit enabled him to build up a sound connection. On the death of Mr. Young in 1926, the business was taken over by Mr. R. Gordon, who had been in partnership with Mr. Young for four years.

Mr. Gordon proved a popular manager, and the firm's business was extended under his careful guidance.

In June, 1933, Mr. E. M. Dixon joined the company, and is now actively associated with Mr. Gordon in the conduct of the company's business. In addition to his wide business experience, he introduced new capital, which has enabled the company to increase its activities on behalf of growers. The Secretary of the company is the founder's daughter, Mrs. G. Collins, who has been associated with the fruit trade for over 20 years.

* * * * *

HERBERT WILSON PTY. LTD.

The principal of this firm, Mr. H. Wilson, has had a lifetime's experience in fruit distribution, and has excellent facilities for handling all classes of fruit at his stand, number 10, Wholesale Fruit Market.

In addition to handling consignments from individual growers, this firm acts as agent for the Murray Citrus Association, S.A.; V.C.C.A., South Australian Tomato Growers' Association, and the selling agents for the well-known "Olivewood" lines of Citrus fruit.

Mr. Wilson makes periodical visits to fruitgrowers, and is always pleased to see them when they are in the city and have a chat about fruit marketing matters generally.

* * * * *

SILK BROS. PTY. LTD.

Messrs. Silk Bros. occupy stores 24 and 25 at the Wholesale Fruit Markets. They also have bulk stores and Banana ripening plants, which cover several acres of space. In addition to their original store, which extends almost from Flinders-street to Flinders-lane, they have taken over space in the ground and first floors at the Oldfleet Building, which extends from Flinders-lane to Collins-street. These stores give them ample space to handle any quantity of fruit which they may receive.

Messrs. Silk Bros. have spent much time and money on perfecting the "cool-air" system of refrigeration for the ripening of Bananas, and they have now in all States a thoroughly up-to-date plant, run according to the most

scientific methods available, which, taken in conjunction with the thorough practical experience of Mr. A. Silk, extending over 25 years, produces results which only the combination of science and experience can give.

The installation of the latest method of handling large quantities of Bananas at the bulk stores in Flinders-lane makes the work much easier, and reduces the risk of damage to a minimum. The cases of fruit are unloaded from the lorries that bring them from the railways direct on to a gravity conveyor of ball-bearing steel rollers, that runs right through the stores. Men remove the lids of the cases as they pass along the rollers, and they are then placed in the ripening chambers that are built on either side of the conveyor. Each district has separate chambers for its fruit, and the men whose duty it is to stack the cases in the ripening chambers see that every case goes into its own special chamber. The roller system is again used for the despatch of ripe fruit from the chambers, and is also in use on their selling floors at the Wholesale Fruit Market. It will thus be seen that there is little chance of the fruit being bruised or damaged before it is displayed for sale. As a matter of fact, eggs could not be handled with greater care than are Bananas from the Tweed River district and from Queensland. There are 56 ripening chambers at Silk Bros.' Flinders-lane stores, and each one can accommodate 80 to 100 cases. An average of 6,000 cases are handled weekly, and a staff of 30 to 40 men are employed to deal with this quantity.

Messrs. Silk Bros. started in a very small way twenty years ago, and their business has gradually developed until, at the present time, they are the largest firm in Australia, with branches in Sydney, Melbourne, Adelaide and Brisbane, and with representation in every fruit-growing district in the Commonwealth. Handling the enormous quantities they do, it would seem that their claim to be the largest, most up-to-date and efficient handlers of fruit in the Southern Hemisphere is fully borne out. The two principals of this enterprising firm, Mr. A. Silk, who is a director of the United Fruit Merchants' Association, and Mr. H. Silk, closely supervise all branches of their business, and are two of the most energetic and thorough men in the fruit trade.

* * * * *

G. WOOLF & SONS.

G. Woolf & Sons, who have two stores, Nos. 29-30, was established at the Western Market 36 years ago, by Mr. Godfrey Woolf. The latter's two sons, Messrs. Nathan and Isaac Woolf, were afterwards taken into partnership, and when Mr. Godfrey Woolf retired in 1912, the brothers carried on.

The growth of the business since that time is one of the romances of the fruit industry. Steady progress each year has marked the history of G. Woolf & Sons from the commencement, and to-day they have one of the largest businesses of its kind in Australia.

Fruit is forwarded to all States of the Commonwealth, and in addition the firm has established a large export business, and fruit is shipped to various world markets. The firm has its own orchard at Pakenham, where 200 acres are planted with export varieties of Apples.

Large quantities of fruit were exported from this orchard during the past season, and this property promises to develop into one of the most up-to-date and progressive commercial orchards in the Commonwealth.

The reinforced concrete cool stores built on the property accommodates 25,000 cases at the present time, but this will later be increased to 80,000 cases capacity. When building the cool store, machinery sufficient to cool 80,000 cases was installed, as it is the intention of the

HERBERT WILSON Pty. Ltd.

WHOLESALE FRUIT MERCHANT AND GROWERS' AGENT

Agents for the
Murray Citrus
Growers' Associa-
tion, South
Australia.

Victorian Central
Citrus Associa-
tion.

South Australian
Tomato Growers'
Association.

South Australian
Celery Growers'
Association.

—o—
Sole Agents for
the well-known
"Olivewood"
Citrus.



—o—
Bankers:
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(Western
Branch),
Melbourne.

—o—
Growers
Protected by
Fidelity Bond.
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No. 10, WHOLESALE FRUIT MARKET, MELBOURNE

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F. A. CHINN & CO.

GROWERS' AGENTS

**No. 40, Wholesale Fruit Market
Melbourne**

And at 102-104-106 Little Bourke Street.

PHONE: F 2452 (All Hours).

—♦—
CONSIGNMENTS OF

All Classes of FRUIT, PEAS & BEANS
Invited from Growers, All States.

—♦—
Bankers: Commercial Banking Co. of Sydney
(Eastern Branch), Bourke St. E.

Reg. Queensland.

Shipping Number 71.

BEST PRICES — PROMPT RETURNS

TIM YOUNG & Co.

Pty. Ltd.

Wholesale Fruit Merchants
... and ...
Commission Agents

18 Wholesale Fruit Market

Growers can be assured of
receiving the very best ser-
vice and prompt returns.

Cable Address: "TIYOUNG."

A.B.C. Code, 5th Edition.

Box 28a, G.P.O., Melbourne.

Tel., F 4321.

Bankers:

E.S. & A. Bank Ltd.,
Melbourne—225 Swanston Street.

CONSIGNMENTS SOLICITED

owner, Mr. I. Woolf, to increase the store capacity to accommodate growers in surrounding districts for whom Messrs. Woolf & Sons pack and ship.

They have a band of energetic helpers at the Wholesale Market, and among them is Mr. Thomas Huxtable, who has been with the firm for 20 years. He was taken into the business in 1927.

* * * * *

F. CAVE & CO. PTY. LTD.

Messrs. F. Cave & Co. Pty. Ltd., of No. 9, Melbourne Wholesale Fruit Market, have built up a substantial trade in handling all classes of fruit, the business having been developed on the lines of specialised service to the producer.

In addition to a big local and interstate trade, Messrs. F. Cave & Co. are one of the largest exporters of Apples and Pears to overseas markets. Mr. Cave personally handles all this side of the business, and is well versed in all matters in connection with export.

He is a member of the Exporters' Handling Committee, and also an executive member of the V.F.M.A. Mr. Cave is a member of the Committee of Selected Agents appointed by the State Fruit Advisory Board, acting in Victoria for Tasmanian orchardists. They are also the Victorian representatives for the Port Huon Fruitgrowers' Co-op. Association, Hobart, and handle on their behalf when in season berry fruits, Apples, Pears, etc.

With the added facilities offered in the new Wholesale Fruit Market, Mr. Cave extended his activities to the handling of Bananas, Pineapples, and other tropical fruits. Mr. Cave is always interested in any movement to improve the grading and packing of fruit, and in this respect he was one of the prime movers in the formation of the Victoria Mark Fruit Co. Ltd., of which he is now a director.

* * * * *

GEO. LISTER PTY. LTD.

Geo. Lister Pty. Ltd., 12 Wholesale Fruit Market, is a very old-established firm. It was founded in 1883, over 50 years ago, by Mr. George Lister, in the Western Market.

The business is now owned by Mr. J. R. Vail, who acquired same in 1927. He has had many years' experience in the fruit trade, and was general manager of Messrs. Samuel Larkinson Ltd., of Covent Garden Market, London. The business, under his guidance and experience has grown to one of the largest firms in the Wholesale Fruit Market.

Mr. Vail takes a keen interest in the trade matters, and was recently appointed by the trade as a director of the Wholesale Fruit Merchants' Association Ltd. He is also a director of the Victoria Mark Fruit Co. Ltd.

TIM YOUNG & CO. PTY. LTD.

Tim Young & Co. Pty. Ltd., who occupy No. 18 Store, near the Queen-street entrance, is a well-known firm of fruit merchants that was originated by Messrs. Tim and Percy Young in 1890. Both the brothers have passed away, but the name still lives in the fruit trade, although for a time it was known as Tim Young, Twyford and Sing War, after an amalgamation in 1908. The present company was formed some years ago with Mr. Fong as managing director.

The operations of the firm are principally confined to Victoria, South Australia and N.S.W., and an extensive trade is done in Bananas, Pineapples and other tropical fruit from Queensland; representatives of Tim Young & Co. are in constant touch with growers in those States, and a large business is done with citrus fruits.

Mr. Fong leads a very active business life, and since the change-over from the old Western Market, with improved facilities, the firm's business has further developed. They occupy also a large warehouse in Franklin-street, opposite the market, for the ripening of Bananas.

* * * * *

Messrs. Esmond Russell Pty. Ltd., of 395 Collins-street, Melbourne, have built up an extensive business as fruit exporters. This firm are also packers, buyers and consignment shippers to overseas and interstate markets. In addition to the foregoing, Messrs. Esmond Russell are also suppliers of all orchardists' requirements.

* * * * *

F. A. CHINN & CO.

F. A. Chinn & Company, growers' agents, have their main store at No. 40 Wholesale Fruit Market, Melbourne. A branch store is situated at 102-106 Little Bourke-street, Melbourne. A large trade in all kinds of fruit, Peas and Beans is conducted with Victoria and other States. Consignments of produce are solicited—all sales are conducted under the supervision of the principals, and prompt returns are made. The firm have a good connection with buyers and find a good demand for quality fruit. Queensland shippers are advised that their shipping number is 71.

Two persons will not be friends long if they cannot forgive each other little failings.—La Buyère.

All men have their frailties, and whoever looks for a friend without imperfections will never find what he seeks. We love ourselves notwithstanding our faults, and we ought to love our friend in like manner.—Syrus.

Growers!!

J. HYMAN & SON

FRUIT AND PRODUCE MERCHANTS,

51 WHOLESALE FRUIT MARKET

And 454 QUEEN STREET, MELBOURNE

Solicit Consignments of Fruit and Vegetables from all States.

— SPACIOUS SELLING FLOOR. —

Experienced Salesmen enable us to handle any quantity in a capable and efficient manner.

— Prompt Returns a Specialty. —

GROWERS PROTECTED BY FIDELITY BOND.

Tel., F 5495. After Hours, M 3045.



Bankers: E.S. & A. Bank.

The Development in Tasmania of Packing Houses for Export Fruit.

It is interesting to note the vast improvement in the grading and packing of Apples and Pears for export that has been made by Tasmania during the last few years as compared with the very long period of preceding years when little change was noticeable. This recent rapid improvement can be attributed partly to Government regulations, partly to the growers themselves and partly to the introduction of central packing houses.

With few exceptions the central packing house in the past has not met with any marked success in Tasmania, but, on the contrary, most of those that started were short-lived and had to close down more often than not through lack of support from the growers.

In the early stages of Apple growing in Tasmania, the grower harvested, graded and packed his own fruit, aided by his family with sometimes a little help from outside, and this method became the general custom over a large number of years, and even still predominates. It provided the grower with the independence he is so fond of and it is also doubtful whether a cheaper method of packing can be found—it is little wonder therefore that the grower has been loath to part with the system. On the other hand, however, the system has its drawbacks from a marketing point of view. foremost among which is the multiplicity of brands and packs with no uniformity what-so-ever, which is a most unsatisfactory state of affairs in the organised marketing of any article, and so soon as Tasmania met the growing competition of standardised packs on the overseas market she began to lose leeway.

The foregoing information was supplied by Mr. Cottier, of E. R. Cottier Pty. Ltd., who states that his firm, believing in the packing house policy, started two packing houses, one in Hobart and one at Spreyton, with the object of putting up a uniform pack that would meet the requirements of overseas distributors. The Canadian type of pine box and pack was adopted, and an attractive label was designed and used.

At first, continues Mr. Cottier, it was an uphill fight, and for the grower to lose control of his fruit by sending it into a central packing house to be graded and packed by others was looked upon with a certain amount of doubt and with very little favor.

However, progress cannot be retarded for long, and after two or three years' operation, and the result of the sale of the pack on the overseas markets became known, these doubts began to disappear and the advantages to appear, and it can be said to-day that central packing houses have come to stay in Tasmania, and that the demand for them is increasing.

The system adopted in the packing houses is such that although both the salesman and the grower receive the benefit of long lines of uniform grade and pack, the grower does not lose his identity, and the salesman can render separate account sales for each growers' fruit when necessary. At the same time it enables the firm to handle f.o.b. and c.i.f. orders that otherwise would be very difficult if not impossible to handle satisfactorily under the old system. At the packing houses controlled by E. R. Cottier Pty. Ltd., at Spreyton, Hobart, Tasmania, all the fruit is put up in the standard (Canadian) case, bearing an attractive label under the firm's registered "ERCOT" brand.

SPECIAL NOTICE TO FRUITGROWERS

In response to numerous requests from growers for information as to who are members of the **Wholesale Fruit Merchants' Association of Victoria** the following list is given. All are members of the above Association, and are registered firms carrying on business in the

WHOLESALE FRUIT MARKET, MELBOURNE.

STAND NUMBERS ARE AS INDICATED IN PARENTHESIS.

T. STOTT & SONS (26).

H. L. E. LOVETT & CO. (23).

A. E. PITT (14).

J. DAVIS PTY. LTD. (8).

W. S. TONG (31).

SILK BROS. PTY. LTD. (24-25).

J. G. MUMFORD (35).

GOLDEN VALLEY FRUIT CO. PTY. LTD. (15).

J. W. ROSS (13).

J. H. YOUNG & CO. PTY. LTD. (32).

H. M. WADE & CO. (21).

DAVID SMITH PTY. LTD. (3).

SILBERT, SHARP & DAVIES PTY. LTD. (17)

W. A. WATKINS (5).

P. A. PATRIKEOS (36).

G. WOOLF & SONS (29-30).

F. CAVE & CO. PTY. LTD. (9).

R. CORNISH & SONS (5).

J. HYMAN & SON (51).

HERBERT WILSON PTY. LTD. (10).

FRANK BOOTH & SONS PTY. LTD. (16).

GEO. LISTER PTY. LTD. (12).

TIM YOUNG & CO. PTY. LTD. (18).

F. W. VEAR PTY. LTD. (28).

GROWERS PROTECT YOURSELVES by consigning to members of the **WHOLESALE FRUIT MERCHANTS' ASSOCIATION OF VICTORIA.**

Correspondence is invited by the Association.

Secretary, 21 Wholesale Fruit Market,
Queen Street, Melbourne. Phone F 4866.

The Australian Dried Fruits Industry



A Review of Development of Production — Export and Local Trade

Rather than simply saying that it is expected that the 1935 season will be a good one, let us briefly survey the commercial history of the dried fruits business since the inception of the Commonwealth Dried Fruits Control Board, using what statistical records are available in the figures for the earliest season recorded (1924-5), and, by comparing them with the figures of 1932-33, we may reasonably well arrive at a fair estimate of the relation between the past, the present and the future positions of the dried fruits industry.

Production.

As indicating the consistent development that the growing of Sultanas, Lexias and Currants has made each year during the past decade, it will be noted that the production in 1924-5 was recorded at 37,217 tons, while the production in 1932-33 was 77,832 tons for those products. It will be thus seen that in approximately eight years the volume of production has more than doubled in dried vine fruits. Taking each grade separately the comparison reveals that Sultanas increased from 20,418 tons in 1924-25 to 53,816 in 1932-33, Currants from 11,693 tons to 16,469 tons, and Lexias from 5,106 tons to 7,547 tons in the same period, the increase in Sultanas being remarkable. After full provision for the domestic requirements of the Commonwealth, the greater part of these quantities were exported.

Export.

An even greater increase is seen in a study of the figures relating to the export of these fruits. In 1924-25 we exported 24,528 tons of Sultanas, Lexias and Currants, but in 1932-33 the volume had increased to 65,727 tons. Analysed into grades, this represented: Sultanas, 1932-33 in brackets — (14,147 tons), 47,564 tons; Lexias (8,261 tons), 4,920 tons, and Currants (7,120 tons), 13,243 tons, again giving a tremendous increase to Sultanas. It is interesting to note that although Great Britain is by far the greatest consumer of these exported fruits, having used in 1932-33, 55,142 tons, a satisfactory increase in export to other Empire markets is revealed in the fact that Canada has increased her purchase from 167 tons in 1924-25 to 8,079 tons in 1932-33, and New Zealand from 1,487 tons to 1,742 tons in the same period, whilst other markets though still small, have more than doubled their volume from 242 tons to 555 tons.

A further study shows that of all Raisins received in Great Britain, Australia has gained preference over the other three chief suppliers, in the period from 1927 to 1933, as follows:—

1927.

	Cwts.	Value.
Australia	565,049	£1,763,377
U.S.A.	531,295	1,001,489
Turkey	217,643	583,083
Spain	178,021	524,098

1933.

	Cwts.	Value.
Australia	871,137	£1,869,158
U.S.A.	264,588	406,204
Turkey	172,792	261,204
Spain	72,648	196,114

showing that our early nearest competitor (U.S.A.) has dropped back considerably, and that Australia has captured at least half of America's former trade with Great Britain in this line.

Converted into percentages, Australia has improved her position since 1925 in the following proportions, computed upon her percentage of the whole of the imports into Great Britain.

In Currants, Australia supplied only 11.6 per cent. of Great Britain's requirements in 1925, whereas in 1933 she supplied 21.5 per cent. In Raisins the percentage rose from 31.2 to 54.2 per cent. in the same period, whilst, taking all dried fruits into account, she provided in 1925, 21.2 per cent. and in 1933 41.4 per cent., but since the increased percentage has been fairly uniform each year during the period under review, it cannot entirely be ascribed to the growing tendency to buy Empire goods to the exclusion of foreign goods, nor yet to the effect of the Ottawa Conference.

In addition to vine fruits, the export of most other dried fruits was considerably increased in 1933-34, as compared with 1932-33, especially in the case of Apricots, Prunes and Peaches. Returns show the following increases in the values of such fruits exported, 1932-33 being in brackets:—Apples (£3,643), £2,190; Apricots (£19,965), £69,092; Peaches (£2,667), £18,248; Prunes (£10,449), £39,157; other (£14,354), £21,990.

Prices.

Whilst the average prices received for Currants and Lexias have risen during the period from 1925 to 1933, those for Sultanas have dropped. This is largely explainable by the marked increase of production in every growing country, almost suggesting that production is in excess of consumption, therefore competitive prices for Sultanas have dropped below expectation. An estimate of world production is approximately 575,000 to 600,000 tons per annum, with a prospective consumption of 500,000 to 525,000 tons per annum. When the Development and Migration Commission made a survey of the Dried Fruits Industry in 1926-27 it was reported that the world production and consumption were 530,000 and 465,000 tons respectively, from which it will be seen that in the intervening years both production and consumption have increased considerably.

The definite decline in world purchasing power for practically all foodstuffs has been reflected in the dried fruits trade, and is another factor in decreased prices. Governmental control in Mediterranean areas has prevented Currant prices dropping, but Sultanas have been affected by many influences, another of which is undoubtedly the comparatively small proportion of top-grade packs to the total production. Imperial preference has undoubtedly assisted Australian growers, and is therefore one of the most important factors in the present and future distribution of our crops.

The following figures show how the prices stood at 1924-25 and 1933-34:—

	1924-25	1933-34.
Sultanas (per ton) . . .	£68 0 0	£47 12 9
Currants	30 15 0	42 2 8
Lexias	31 16 8	41 17 6

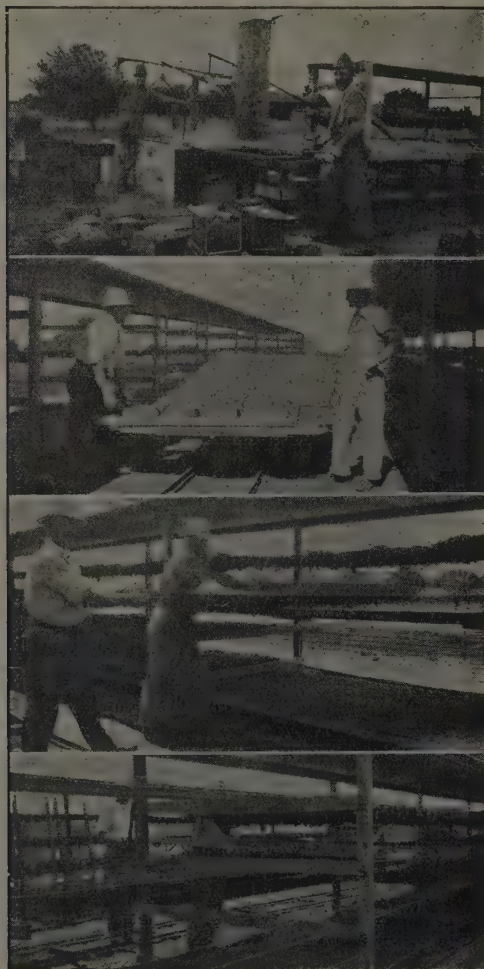
Canada.

It is a point of great satisfaction that trade with Canada has been developed since 1925, until the Canadian market

has now become an important outlet for our products in dried vine fruits. The following table shows the increase in the three lines:—

	Sultanas.	Currants.	Lexias.	Total.
1925-26 .. tons	261	406	109	776
1932-33 .. tons	6,268	1,468	343	8,079

Again converting these figures into Australia's percentage of the total importations into Canada, we find that Australia has displaced U.S.A. as the chief supplier to Canada, and has entirely closed out Greece's contribution in the past four years. A comparative table would show the alteration in position by the three countries.



DRYING VINE FRUITS.

Illustrations (from top to bottom):—(1) The last of a set of fruit-laden trays entering dip for immersion; (2) Placing slide over fruit trays prior to inversion; (3) After tray and slide are placed in desired position on rack, the tray is held firmly, whilst the slide is withdrawn; (4) Same as No. 3—opposite side of rack.

	U.S.A. supplied (of total)	Currants.	Raisins (Sultanas and Lexias.)
In 1928			
U.S.A. supplied (of total)	0.6%	0.6%	88.0%
Greece	17.5%	17.5%	0.4%
Australia	81.0%	81.0%	8.0%
In 1934			
U.S.A.	0.6%	0.6%	38.3%
Greece	2.5%	2.5%	—
Australia	93.4%	93.4%	53.0%

New Zealand.

The benefit of reciprocal trading with New Zealand is reflected in the supplies of Australian dried fruits which she is taking. A preferential duty of 1d. per lb. in favor of Australia should enable us to secure a much larger share in that cultivated market. The improved methods of seeding Australian Lexias has created a good demand for this line and sales should be improved.

Of the total importations into New Zealand, Australia supplied in 1925, 40.4 per cent. of all Currants, Sultanas and Raisins, but had improved her percentage in 1932 to 61.3 per cent., which in 1933 dropped back to 40 per cent. It is expected that the recent mutual understanding entered into regarding reciprocal trade between the two countries will result in the 1932 percentage being recovered or bettered.

Home Consumption.

Figures for dried fruits consumed in the Commonwealth in 1934 showed slight decreases from the 1933 reports, in spite of consistent advertising on the part of the Australian Dried Fruits Association, per medium of newspaper publicity, publicity vans in N.S.W., South Australia and Queensland, in which officers of the association tour the States and give lectures and movies telling of the food value of dried fruits and the story of the development of Raisin growing, and per the distribution of cookery recipe books. Home consumption quotas for 1934 were: Sultanas, 17.5 per cent.; Currants, 20.0, and Lexias, 33.4 per cent. of total production.

The consumption within the Commonwealth is recorded as:—

	1933.	1934.
Sultanas (tons)	6,500	6,244
Currants	3,181	2,935
Lexias	2,570	2,438
Apricots	546	539
Peaches	135	190
Nectarines	7	23
Pears	72	61
Prunes	—	1,008

1935 Prospects.

It is not sheer blind optimism that suggests that prices for the Australian 1935 crop of Raisins should firm. Several factors enter into the prospects, chief of which are that world production dropped by about 91,000 tons in 1934, that California's crop was less by 60,000 tons, and Smyrna's by 20,000 tons, and that a drop in Australian production is anticipated for next year. Heavy rainfalls and difficult drying conditions accounted largely for the 1934 drop in yield in Victoria and New South Wales. Estimates announced in Turkey and Greece are lower than last year, but the Spanish prospects are reported to be favorable, and the crop may even exceed last year's yield. Smyrna and Greek Sultana exports will probably be 15 per cent. below those of 1933-34.

On the whole, the prospects are satisfactory, but the future depends upon the maintenance of Imperial preferences in the three greatest markets: Great Britain, Canada and New Zealand, with a continued increase of

home consumption in the Commonwealth. The hope of the industry is that the Commonwealth policy will continue to be directed towards the maintenance of existing preferences towards Australian dried fruits.

Even though Great Britain consumes some 125,000 tons of dried fruits annually, and could readily absorb all of Australia's export quota of approximately 50,000 tons, she has still to give some concession to her other suppliers under reciprocal trade arrangements, therefore Australia would be wise to not only retain her growing trade with both Canada and New Zealand, but also increase it, whilst, at the same time, endeavouring to cultivate small markets already exploited or to discover new ones. If Canada and New Zealand can be induced to take 20,000 tons per annum, instead of the 10,000 to 15,000 tons at present, and if our own local consumption can be doubled, any

diminution of the London market in the near future could be viewed with less alarm, and the industry greatly benefited.

It is conceivable that any great increase of dried fruits thrown on the English market must depress prices as well as delay realisation in the exporting year, probably causing a heavy carry-over, which will affect the following year's demand and prices; therefore, rather than rely upon the English market as a permanent pool into which our increasing production can be dumped, we should also cultivate other channels of distribution.

The three main factors then, entering into the prospects for the future, seem to be the retaining or extending of present markets, the maintenance of reciprocal Empire trade and the continuance or improvement of the high quality of our products.

DRIED FRUIT PACKING SHEDS.

THE following is a list of Registered Packing Sheds operating under the Dried Fruits Control Boards in the several States.

Official No. of Packing Shed; name and address of packer; situation of Packing Shed:—

New South Wales.

- 1 The Manager, Leeton Packing Co., 39 York-street, Sydney. Griffith.
- 2 The Manager, Leeton Packing Co., 39 York-street, Sydney. Leeton.
- 3 The Manager, The Producers' Packing Co., Valentine and Quay streets, Sydney. Leeton.
- 4* The Manager, Riverina Welfare Farm, Yanco. Yanco.
- 5* R. H. Bow & Co., Farm No. 1534, Yenda. Yenda.
- 6* W. D. Walster, Kemp-street, Junee. Jesmond Vineyard, Junee.
- 7* W. Boots, Farm No. 871, Stanbridge, via Leeton. Stanbridge.
- 8* S. V. Billings, Tapaulin, via Mildura. Tapaulin.
- 9* Messrs. Brett Bros., c/o N. E. Brett, Mt. Dispersion, via Euston, N.S.W. Mount Dispersion.
- 10 The Secretary, Crowe & Newcombe, 99 Currie-street, Adelaide, S.A. Dareton.
- 11 The Secretary, Mildura Co-op. Fruit Co. Ltd., Curlwaa, N.S.W., via Mildura. Curlwaa.
- 12* White, Eley & Crimp, c/o R. A. Crimp, P.O. Box 25, Wentworth, N.S.W. Pomona.
- 13 Sharrock Bros., Goodnight, N.S.W. Goodnight.
- 14 W. L. Smith, Lavington, N.S.W. Lavington.

Victoria.

- 16 The Manager, Aden Packing Co., Irymple. Irymple.
- 17 The Secretary, Aurora Packing Co. Pty. Ltd., 568 Collins-street, Melbourne, C.I. Irymple No. 1 Shed.
- 18 The Secretary, Aurora Packing Co. Pty. Ltd., 568 Collins-street, Melbourne, C.I. Irymple No. 2 Shed.
- 19 The Secretary, Aurora Packing Co. Pty. Ltd., 568 Collins-street, Melbourne, C.I. Merbein.
- 20 The Secretary, Aurora Packing Co. Pty. Ltd., 568 Collins-street, Melbourne, C.I. Redcliffs.
- 22* The Secretary, Chateau Mildura and Olivewood Pty. Ltd., 31 Queen-street, Melbourne, C.I. Irymple.
- 23 The Secretary, Irymple Packing Pty. Ltd., Irymple. Irymple.
- 24 The Secretary, Irymple Packing Pty. Ltd., Irymple. Merbein.
- 26 The Secretary, Mildura Co-op. Fruit Co. Ltd., Mildura. Mildura.

- 27 The Secretary, Mildura Co-op. Fruit Co. Ltd., Mildura. Merbein.
- 28 The Secretary, Mildura Co-op. Fruit Co. Ltd., Mildura. Irymple.
- 29 The Secretary, Mildura Co-op. Fruit Co. Ltd., Mildura. Birdwoodton.
- 30 The Secretary, Redcliffs Co-op. Packing Co. Ltd., Redcliffs. Redcliffs No. 1 Shed.
- 31 The Secretary, Redcliffs Co-op. Packing Co. Ltd., Redcliffs. Redcliffs No. 2 Shed.
- 33 The Secretary, Sarnia Packing Pty. Ltd., Mildura. Mildura.
- 34 The Secretary, Swallow & Ariell Ltd., Rouse-street, Port Melbourne, S.C.7. Mildura.
- 35 Messrs. Nieman and Derriek, Murrawee. Murrawee.
- 36 G. Hands, Vinifera, Nyah. Vinifera.
- 37 The Manager, Henty Packing Pty. Ltd., Nyah West. Nyah West.
- 38* Hungerford & Sons, Piangil. Piangil.
- 39 Allan Jenkins, Nyah. Nyah.
- 40 J. & K. McAlpine, Nyah. Nyah.
- 41 The Manager, Nyah West Fruitgrowers' Co-op. Co., Nyah West. Nyah West.
- 42 The Manager, Tandaco Packing Co., Nyah. Nyah.
- 43 J. Thwaites, Nyah. Nyah.
- 44 R. K. Woods, "Willowmere," Kyabram. Kyabram.
- 45 The Manager, Woorinen Fruitgrowers' Co-op. Ltd., Woorinen South. Woorinen South.
- 46* J. J. Desmond, Macoom Packing Shed, Fairy Dell, Rochester. Rochester.
- 47 C. Chequer, Quantong. Quantong.
- 48 G. Grohs, Quantong. Quantong.
- 49 H. Overall, Quantong. Quantong.

South Australia.

- 50* The Secretary, Chateau, Mildura, and Olivewood Pty. Ltd., 31 Queen-street, Melbourne, C.I. Renmark.
- 51 Cole and Woodham Ltd., Renmark. Renmark.
- 52 The Secretary, Crowe and Newcombe, 99 Currie street, Adelaide, S.A. Renmark.
- 53* D. T. Durieu, Renmark. Renmark.
- 54* A. Malcolm, Renmark. Renmark.
- 55* J. H. M. Price, Renmark. Renmark.
- 56 The Manager, Renmark Fruit Growers' Co-op. Ltd., Renmark. Renmark.
- 57 C. A. Ritchie & Son, Renmark. Renmark.
- 58* G. R. Saies, Renmark. Renmark.
- 59 F. H. Stevens, Renmark. Renmark.
- 60 The Manager, Barmera Co-op. Packing Co. Ltd., Barmera. Barmera.
- 61 The Manager, Berri Co-op. Packing Union Ltd., Berri. Berri.

- 62 The Secretary, Crowe and Newcombe, 99 Curriestreet, Adelaide, S.A. Barmera.
 63 R. C. G. Frankel, Glossop. Glossop.
 64 A. G. Ireland, Cobdogla. Cobdogla.
 65 The Manager, Monash Packing Co., Monash. Monash.
 66 H. F. Traeger, Berri. Berri.
 67 F. A. James, 195 Victoria-square, Adelaide. Berri.
 68 The Manager, Toora Vale Co., Berri. Berri.
 69* H. Hunter, Ramco. Ramco.
 70* J. J. Odgers, Ramco. Ramco.
 71 The Manager, Ramco Co-op. Ltd., Ramco. Ramco.
 72 The Manager, Waikerie Co-op. Fruit Co. Ltd., Waikerie, Waikerie.
 73 The Manager, Cadell Fruit Packers Ltd., Cadell. Cadell.
 74 The Secretary, A. E. Hall & Co., "Hallcourt," Weymouth-street, Adelaide, Box 1029 J.G.P.O. Cadell.
 75* S. J. Robertson, Murray Valley Fruit Co., Cadell. Cadell.
 76 The Manager, Kingston Co-op. Fruit Packing Union Ltd., Kingston-on-Murray. Kingston-on-Murray.
 77* Holmes Bros., Kingston-on-Murray. Kingston-on-Murray.
 78* F. Merritt, Kingston-on-Murray. Kingston-on-Murray.
 79 The Manager, Moorook Co-operators Ltd., Moorook. Moorook.
 80* The Manager, Media Irrigation Ltd., Loxton. Loxton.
 81* The Manager, Sherwood Packing Co., Loxton. Loxton.
 82 The Manager, Pyap Co-op. Society Ltd., Pyap. Pyap.
 83 The Manager, Lyrup Village Assoc., Lyrup. Lyrup.
 84 The Manager, Mypolonga Co-op. Society Ltd., Mypolonga. Mypolonga.
 85 The Manager, Angaston Fruit Growers' Co-op. Society Ltd., Angaston. Angaston.
 86 The Secretary, Crowe and Newcombe, 99 Curriestreet, Adelaide, S.A. Angaston.
 87 Exors. Estate J. W. Mattiske, deceased, Angaston. Angaston.
 88 A. Thorn, Angaston. Angaston.
 89 The Manager, Stanley Dried Fruits Assoc. Ltd., Clare. Clare.
 90 The Manager, Clare Fruit Packers Ltd., Clare. Clare.
 91 R. G. Bell, McLaren Flat. McLaren Flat.
 92 The Manager, McLaren Vale Packers Ltd., McLaren Vale. McLaren Vale.
 93 Mrs. R. Oliver, McLaren Vale. McLaren Vale.
 94* A. T. Dowding, Langhorne Creek. Langhorne Creek.
 95 A. H. Howard, Langhorne Creek. Langhorne Creek.
 96 The Secretary, Crowe and Newcombe, 99 Curriestreet, Adelaide. Port Adelaide.
 104 The Secretary, G. Wood, Son & Co. Ltd., North Terrace, Adelaide. Port Adelaide.
- West Australia.
- 97 A. R. Boxall, Millendon. Millendon.
 98 The Manager, Swan Settlers' Assoc. Ltd., Herne Hill. Herne Hill.
 99 The Manager, St. Albans Packing Shed, Upper Swan. Upper Swan.
 100 A. E. Watts, Greenmount Packing Shed, Greenmount. Greenmount.
 101 The Manager, West Swan Dried Fruit Packing Co., West Swan. West Swan.

- 102 A. Yeates, Millendon. Millendon.
 103 Cox Bros., Athgarvon, Coolup. Coolup.
 Note:—* Private packers, i.e., packing own products only.

FRUIT GROWERS' ASSOCIATIONS THROUGHOUT AUSTRALIA.

The Australian Apple and Pear Export Council.

President: J. B. Mills, 528 Collins-street, Melbourne;
 Vice-President: B. J. Pearsall, Kingston, Tasmania; Secretary: R. E. Boardman, Box 1095, G.P.O., Melbourne.

Affiliated Associations—

Tasmania.—Tas. State Fruit Advisory Board, Tas. Fruit Shippers' Committee, N. Tas. Fruit Shippers' Committee.
 Victoria.—Victorian Fruit Marketing Association.

S. Australia.—S. Aust. Fruit Marketing Association.

W. Australia.—W.A. Fruitgrowers' Association, W.A. Fruit Shippers' Committee.

New South Wales.—N.S.W. Apple and Pear Export Association.

Queensland.—Committee of Direction of Fruit Marketing.

Australian Dried Fruits Association.—Sec., W. N. Sumner, Cornhill Chambers, Collins-street, Melbourne.

Australian Fruit Cannery's Association.—Sec., A. J. Phillips, Temple Court, Collins-street, Melbourne.

Federal Citrus Council.—Sec., A. W. Schewennesen, Temple Court, Collins-street, Melbourne.

NEW SOUTH WALES.

Fruitgrowers' Federation of N.S.W.—Secretary, E. E. Herrod, 11 Bligh-street, Sydney.

List of Affiliated Organisations, together with Names and Addresses of Secretaries.

Arcadia F.G.A.—E. L. Alexander, Arcadia, via Hornsby.
 Annangrove Prog. and Citizens' Anns.—E. R. Langlands, Bona Vista, Annangrove.

Arding F.G.A.—J. H. Yeomans, Arding, via Uralla.
 Armidale and Dist. F.G.A.—R. Jackes, Box 74, Armidale.

Aylmerton (A.B.C.) Agric. Bureau.—L. C. Owen, Wandilla, Alpine.

Banana Growers' Fed. Co-op. Ltd.—A. Buckley, Box 31, Murwillumbah.

Bathurst F.G.A.—E. Ray, O'Connell-road, Bathurst.

Batlow Agric. Bureau.—J. E. Dodds, "Greenlands," Batlow.

Batlow Packing House and Cool Stores Rural Co-op. Soc. Ltd., Batlow.

Berrima and Dist. A.H. and I. Society.—H. Richardson, Moss Vale.

Binalong Agric. Bureau.—W. Arthur, Binalong.

Brady's Gully F.G.A.—J. D. Kirkness, Brady's Gully, via Gosford.

Bulga Agric. Bureau.—L. C. Dodds, "Glenanne," Bulga.
 Buninyong Agric. Bureau.—C. J. Rowcliff, Old Dubbo-road, Dubbo.

Camden A.H. and I. Society.—G. V. Sidman, Camden.
 Cattai Dist. Progress Assn. and Agric. Bureau.—R. M. Arndell, Macquarie Retreat, Pitt Town, via Windsor.

Central Mangrove Citrus Packing House Ltd.—Private Mailbag, Mangrove Mt., via Gosford.

Central Nth. Coast Tomato, Fruit and Veg. Co-op. Soc. Ltd.—A. G. Henderson, Valla.

Cessnock and Dist. F.G.A.—R. McNamara, Mt. View, via Cessnock.

Coff's Harbor F.G.A.—V. E. Allen, Coff's Harbor.

- Coomealla Settlers' Progress Assn.—C. Aubrey Calf, Dareton.
- Cordeaux Agric. Bureau.—F. A. March, Cordeaux River, Kembla Heights.
- Crookwell, A.P. and H. Society.—A. G. McDonald, Crookwell.
- Cullya Fruitgrowers' Co-op. Soc. Ltd.—March, via Orange.
- Curlwaa Fruitgrowers' Progress Assn.—R. S. Thornton, Curlwaa.
- Dooralong Agric. Bureau.—R. Ditton, Dooralong, via Wyong.
- Dural F.G.A.—R. Badger, Dural.
- East Kurrajong Progress Assn.—F. Case, Kurrajong.
- Elderslie Agric. Bureau.—A. F. Pankhurst, Elderslie, Branxton.
- Exeter Agric. Bureau.—P. C. Allen, Exeter.
- Fairfield and Dist. F.G.A.—G. Lehmann, Water-street, Smithfield.
- Freeman's Reach-Glossodia Agric. Bureau.—A. Krahe, Wilberforce.
- Glenfield Agric. Bureau.—A. J. Blinman, Glenfield.
- Glenorie F.G.A.—C. Black, Glenorie.
- Glossodia Progress Assn.—H. J. Smith, Glossodia, via Windsor.
- Gosford Co-op. Citrus Packing House Ltd.—Box 10, Gosford.
- Gosford Bulk Loading Rural Co-op. Soc. Ltd.—L. Dubois, Railway Goods Yard, Gosford.
- Goulburn A.P. and H. Society.—T. Higgins, Box 116, Goulburn.
- Grafton Dist. F.G.A.—B. C. Eggins, Kent-street, Grafton.
- Gressford Agric. Bureau.—G. N. Doyle, East Gressford.
- Griffith Prod. Co-op. Co. Ltd., Box 76, Griffith.
- Grose Vale Prog. Assn.—J. F. Power, Grose Vale.
- Grose Wold Prog. Assn.—H. C. Matheson, "Glenara," Grose Wold.
- Gunning P. and I. Society.—G. E. Ardill, Gunning.
- Holgate Prog. Assn.—R. Gale, Holgate, via Gosford.
- Hawkesbury and Nepean Fed. of Progress Assns.—H. C. Matheson, Grose Wold.
- Hunter River and Dist. F.G.A.—W. Howarth, Lorn, West Maitland.
- Inverell and Dist. F.G.A.—J. M. McDonald, Warialda-road, Inverell.
- Jilliby F.G.A.—W. J. Beaven, Jilliby-road, via Wyong.
- Kellyville Agric. Bureau.—A. Bathgate, Kellyville.
- Kenthurst Parents' and Citizens' Assn.—F. Brocklehurst, Kenthurst.
- Kentucky Agric. Bureau, Co-op. Packing House Ltd., Kentucky.
- Kentucky Rural Co-op. Soc. Ltd.—W. W. Challis, Kentucky South.
- Kentucky F.G.A.—J. Ballantyne, Kentucky South.
- Kincumber and Avoca F.G.A.—G. J. Skiller, Kincumber.
- Kingsvale Rural Co-op. Soc. Ltd., Box 5, Young.
- Kootingal Parents' and Citizens' Assn.—Mrs. B. M. Sage, Kootingal.
- Kulnura Agric. Bureau.—J. H. Taylor, Kulnura, via Gosford.
- Kurrajong Prod. Assn.—A. E. Vincent, Kurrajong.
- Lavington Agric. Bureau.—W. Hanna, Lavington.
- Leeton Fruitgrowers' Co-op. Soc. Ltd., Box 97, Leeton.
- Lemon Growers' Assn.—R. W. Bennett, Mangrove Mt., via Gosford.
- Lisarow F.G.A.—H. E. Gossip, Lisarow.
- Liverpool and Dist. F.G.A.—P. Richardson, Illawarra-road, Moorebank, Liverpool.
- Lower Portland F.G.A.—H. Lowe, Lower Portland.
- Maidens Brush Prog. Assn.—J. Rosa, Whitton-street, Gosford.
- Mangrove Mt. F.G.A.—A. E. Lillicrap, Mangrove Mt., via Gosford.
- Maraylya and Dist. F.G.A.—A. Wimble, Maraylya.
- March Agric. Bureau.—N. Griffith, "Melyra," March, via Orange.
- March Fruitgrowers' Assn.—E. Griffith, March, via Orange.
- Mardi Agric. Bureau.—L. T. Bray, Mardi, via Wyong.
- Maroota F.G.A.—L. L. Barwick, Maroota, via Windsor.
- Matcham Agric. Bureau.—A. E. Caldwell, Matcham, via Gosford.
- Maimuru Rural Co-op. Soc. Ltd., Cloete-street, Young.
- Millthorpe F.G.A.—W. W. Moad, "Merlyn," Millthorpe.
- Mitchell's Flat Central Agric. Bureau.—G. Ernst, Mitchell's Flat, via Singleton.
- Mt. Hunter Agric. Bureau.—J. Childs, Mt. Hunter, via Camden.
- Morisset and District Agric. Bureau.—G. W. Brown, "Wonga Hill," Martinsville.
- Molong Fruitgrowers' Assn.—E. L. M. Parslow, Box 25, Molong.
- Moorland Agric. Bureau.—P. Everingham, Moorland.
- Mt. Wilson and Mt. Irvine F.G.A.—G. Valder (Jnr.), "Noonoo," Mt. Wilson.
- Mudgee F.G.A.—E. W. Roth, "Putta Bucca," Mudgee.
- Narara F.G.A.—E. J. Coady, Narara.
- Newcastle Dist. F.G.A.—A. Barrett, Cardiff.
- Niagara Park F.G.A.—W. F. Townsend, Niagara Park, via Gosford.
- Nepean Dist. F.G.A.—M. G. Walker, Emu Plains.
- Nepean Dist. A.H. and I. Society.—C. H. Fulton, Box 17, Penrith.
- Nullamanna Agric. Bureau.—R. E. Gearing, Nullamanna.
- North Richmond Prog. Assn.—R. D. Turnbull, North Richmond.
- Oakville Progress Assn.—W. H. Midson, Oakville, via Riverstone.
- Oakdale Fruitgrowers' and Progress Assn.—S. J. Sharpe, Oakdale.
- Orange Prod. Rural Co-op. Soc. Ltd., Box 171, Orange.
- Orangeville F.G.A.—G. N. Mackie, Orangeville, via Camden.
- Orchard Hills and Dist. F.G.A.—K. Basedow, Orchard.
- Ourimbah Bulk Loading Rural Co-op. Soc. Ltd.—F. L. Walton, Ourimbah.
- Parkesbourne Agric. Bureau.—G. Brown, Parkesbourne.
- Pennant Hills Fruitgrowers' and Progress Assn.—E. A. O'Hara, Purchase-road, West Pennant Hills.
- Peats Ridge F.G.A.—A. J. Love, Peats Ridge, via Gosford.
- Penrose Agric. Bureau.—C. Hebblewhite, Penrose.
- Penrose Fruitgrowers' Rural Co-op. Soc. Ltd.—J. E. Tickner, Penrose.
- Pitt Town Parents' and Citizens' Assn.—W. Snape, Pitt Town, via Windsor.
- Producers' Co-op. Distrib. Soc. Ltd. (Fruit Section).—Box 86c, P.O., Haymarket.
- Running Stream F.G.A.—E. Bartlett, "Melrose," Capertee.
- Saratoga F.G.A.—J. J. Bourke, Saratoga.
- Sackville North F.G.A.—S. N. Mitchell, Sackville North, via Windsor.

Shipley Prog. and Fruitgrowers' Co-op. Assn.—R. S. Longton, Shipley, via Blackheath.
 Singleton Fruitgrowers' Case Assn.—A. J. Taylor, Warkworth, via Singleton.
 Somersby F.G.A.—W. Davidson, Box 2, Somersby, via Gosford.

St. Ives Prog. Assn.—M. H. Reynallt, St. Ives.
 Tahmoor Agric. Bureau.—A. G. Miller, Tahmoor.
 Tallong F.G.A.—H. Kettle, Tallong.
 Tenterfield and Dist. Chamber of Commerce (Fruit Section), Tenterfield.

Terrigal F.G.A.—A. C. Arnot, Terrigal.
 Tuggerah F.G.A.—F. C. Frupp, Tuggerah.
 Tumby Umbi and Dist. Agric. Bureau.—A. L. Bohringer, Tumby Umbi, via Wyong.

Upper Colo Prog. Assn.—J. E. Forgham, Upper Colo.
 Uralla Fruitgrowers' Assn.—W. A. Crapp, Uralla.
 Wamberal F.G.A.—E. T. Henningham, Wamberal, via Gosford.

Warkworth Agric. Bureau.—A. J. Moss, Road Mail, Singleton.

Waterview Rural Co-op. Soc. Ltd., c/o T. Steele, Box 54, Young.

Wedderburn F.G.A.—R. F. Arundel, Wedderburn, via Campbelltown.

West Gosford F.G.A.—S. H. Pierce, West Gosford.

Wilberforce Prog. Assn.—P. Bushell, Wilberforce.

Wilberforce and Dist. F.G.A.—Alex Smith, Jnr., Freeman's Reach.

Wingello Agric. Bureau.—C. Nurse, Fruit Section, Wingello.

Wirrimah Rural Co-op. Soc. Ltd., Wirrimah, via Bendick Murrell.

Woonona and Dist. Agric. Bureau.—F. Turnbull, York-road, Bellambi.

Wiseman's Ferry and Dist. Fruitgrowers' Assn.—C. Riley, "Wanatta," Wiseman's Ferry.

Wyoming Agric. Bureau.—R. W. Haynes, Wyoming, via Gosford.

Wyong Co-op. Citrus Packing House Ltd., Wyong.

Yarramundi Falls Prog. Assn.—A. P. Luscombe, Agnes Banks.

Yass P. and A. Association.—A. B. Chapman, Yass.

Yarramalong Agric. Bureau.—A. G. Waters, Yarramalong.

Yenda Producers' Co-op. Soc. Ltd., Box 19, Yenda.

Young Cool Stores Rural Co-op. Soc. Ltd., Box 5, Young.

Young Fruitgrowers' Co-op. Soc. Ltd., Box 5, Young.

Young Dist. Producers' Co-op. Assn. Ltd., Box 5, Young.

QUEENSLAND.

Committee of Direction of Fruit Marketing, Turbot-street, Brisbane. General Manager, W. Ranger; Sub-Manager, W. Ellison.

Affiliated registered Associations, with names and addresses of Secretaries, are as follow:—

The initials indicate the kind of fruit grown, thus—"B," Bananas; "P," Pineapples; "O," Other Fruits; "C," Citrus.

Branches of the Committee of Direction.

Melbourne Office.—A. V. Wilson, Box 648E, G.P.O., Melbourne.

Sydney Office.—P. S. Chinn, Box 176, Haymarket P.O., Sydney.

Rockhampton Office.—S. McCullough, Box 313, P.O., Rockhampton.

Bowen Office.—B. Cox, Box 171, P.O., Bowen.

("L.P.A." means Local Producers' Association.)

Amamoor L.P.A. (B., P., C.).—J. F. Hulme, Amamoor.
 Ambrose F.C.A. Ltd. (B., O.).—M. A. W. Boge, Ambrose.

Aspley L.P.A. (P., O.).—W. F. King, Aspley.

Bald Hills L.P.A. (B., P., O., C.).—W. E. Pearson, Bald Hills.

Brackenridge L.P.A. (P., O., C., B.).—J. F. Gaskell, Brackenridge, via Sandgate.

Brighton L.P.A. (B., P., O., C.).—G. Buchanan, Brighton, via Sandgate.

Brookfield L.P.A. (P., O., B.).—A. Mackey, Brookfield.

Byfield L.P.A. (B., C.).—A. H. Mortensen, Byfield, via Yeppoon.

Beerburum F.C.A. Ltd. (P., B., C.).—W. J. Soares, Beerburum.

Birkdale F.C.A. Ltd. (P., O.).—F. Sturman, Birkdale.

Buderim Mt. F.G.A. (B., P., O., C.).—H. Reed, Buderim Mt.

Burrum Dist. Cit. Assoc. (C.).—R. G. Reaney, Howard.

Burrum L.P.A. (C.).—H. G. Rowston, Torbanlea.

Beenleigh F.C.A. (B.).—W. F. Benfer, Hillside, via Beenleigh.

Bowen Dist. F.G.A. Ltd. (P., O., C.).—G. Pott, Bowen.

Bouldercombe L.P.A. (C., O.).—P. Dwyer, Bouldercombe, via Rockhampton.

Bowling Green L.P.A. (B., P., O., C.).—G. Whittaker, Aramara.

Beerwah F.G.A. (P., B., C., O.).—L. T. Dimes, Beerwah.

Baffle Creek L.P.A. (Fruitgrowers' Section).—F. Kleinschmidt, Rosedale, N.C.L.

Cedar Creek F.C.A. Ltd. (B., P., C., O.).—G. A. Frusher, Closeburn.

Cooroy F.C.A. Ltd. (B., P.).—A. Gordon, Cooroy.

Cooran-Kin-Kin F.C.A. Ltd. (B., P.).—E. McDonald, Cooran.

Curumbin Banana Growers' Association.—J. Fennessy, Curumbin.

Caboolture F.G.A. Ltd. (P., O., C., B.).—S. F. Pope, Caboolture.

Cameron Pocket F.G.A. (B., P.).—E. R. French, Cameron Pocket, Calen, N.Q.

Conway F.G.A. (B.).—J. G. Lott, Conway, via Prosperpine.

Cooloolabin F.G.A. (B., P., C.).—W. H. Sweet, Cooloolabin, via Yandina.

Dagun F.C.A. Ltd. (B., P., C.).—P. Hicks, Dagun.

Dundowran L.P.A. (B., P.).—J. R. Stocks, Dundowran, Nikenbah.

Dayboro F.G.A. (B.).—P. Penders, Dayboro.

Elimbah F.C.A. Ltd. (P., C.).—E. Broughton, Elimbah.

Eight Mile Plains L.P.A. (P., O.).—E. J. Hampson, Eight Mile Plains.

Eudlo and Dist. F.G. and P. Assoc.—T. Ellis, Eudlo.

Eumundi F.G.A. Ltd. (B.).—A. W. Chapman, Eumundi.

Gympie F.C.A. Ltd. (B.).—M. Buchanan, Goomboorian, via Gympie.

North Deep Creek and Corella L.P.A. (B.).—J. Colley, Tamaree.

Mary's Creek L.P.A. (B.).—J. P. Jackson, Mary's Creek, via Gympie.

Cedar Pocket L.P.A. (B.).—F. W. Johns, Cedar Pocket, via Gympie.

Chatsworth F.G.A. (B.).—T. P. Reynolds, Chatsworth, via Gympie.

Glastonbury F.G.A. (B.).—B. C. Betts, Glastonbury, via Gympie.

Goomboorian F.G.A. (B.).—W. Williams, Goomboorian, via Gympie.

- Mooloo F.G.A. (B.).—W. Kirkwood, Junr., Mooloo, via Gympie.
- Pie Creek F.G.A. (B.).—S. Adcock, Pie Creek, via Gympie.
- Lower Goomboorian F.G.A. (B.).—G. E. Elliott, Lower Goomboorian, via Gympie.
- Green's Creek F.G.A. (B.).—E. Brabiner, Green's Creek, via Gympie.
- Upper Veteran L.P.A. (B.).—V. B. Gray, Upper Veteran-road, Gympie.
- Scrubby Creek L.P.A. (B.).—J. P. Cary, Scrubby Creek, via Gympie.
- Gayndah and Dist. F.G.A. (C.).—C. F. P. Grimson, Humphery, Gayndah.
- United Fruitgrowers Ltd. (P., C.). — C. G. Holloway, Glasshouse Mountains.
- Glenwood L.P.A. (B., C.).—A. W. Doel, Gunalda.
- Hunchy L.P.A. (B., P., C.).—Geo. Morrison (Secretary), Hunchy, via Palmwoods.
- Howard L.P.A. (C.).—E. Richards, Howard.
- Jubilee Pocket Banana Growers' Association (B.).—John Campbell, Jubilee Pocket, Cannon Valley, Proserpine, N.Q.
- Kiamba L.P.A. (B., P., C.).—P. T. Smith, Kiamba, via Yandina.
- Kandanga F.C.A. Ltd. (B., P., C.).—Kelso L. Viles, Kandanga.
- Kilcoy F.C.A. (B.).—R. C. Jenkinson, Sandy Creek, Kilcoy.
- Kennedy-Meunga L.P.A. (B., C., O.).—J. C. Evans, Carruchan, Kennedy, N.Q.
- Kelsey Creek F.G.A. (O.).—H. R. Cooper, Proserpine.
- Kallangur L.P.A. (B., P., O.).—F. W. Hansford, Kallangur, via Petrie.
- Lagoon Pocket F.C.A. (B., C.).—G. H. Watson, Lagoon Pocket.
- Landsborough F.C.A. Ltd. (B., P., O., C.). — W. F. Richardson, Bald Knob, via Landsborough.
- Meeandah L.P.A. (B., O.).—P. Adsett, Eagle Farm Post Office.
- Moggill L.P.A. (B., P., C.).—E. Shield, Moggill.
- Montville F.P. and P. Assoc. (B., P., C.).—J. Dart, Montville, via Palmwoods.
- Mooloolah F.C.A. Ltd. (B., P., C.).—W. J. Miller, Mooloolah.
- Mt. Cotton L.P.A. (B., O., C., P.).—H. G. Holzapfel, Mt. Cotton.
- Morayfield L.P.A. (P., O., C.).—J. P. Smith, Morayfield.
- Manly and Dist. F.G.A. (O., P.).—A. J. Jones, Springs Gardens Estate, Manly.
- Mt. Mermaid L.P.A. (P., C., O.).—A. R. Vaisey, Upper Brookfield.
- Ratepayers and Producers' Assoc. (Banana Section) (B.).—L. J. Henman, Mudgeraba.
- Mackay District F.C.A. (B., C., O.).—A. Gibson, Box 120, Mackay.
- Nambour F.C.A. Ltd. (B., P., O., C.).—R. H. Whalley, Nambour.
- Flaxton F.C.A. (B., P., C.).—J. K. Perkins, Flaxton, via Palmwoods.
- Mapleton F.C.A. (B., P., C.).—A. A. Probert, Mapleton.
- North Arm F.C.A. Ltd. (B., P.).—H. Mulcahy, North Arm.
- Nerang F.C.A. (B.).—K. R. Hack, Nerang.
- Ormiston F.C.A. Ltd. (B., P., O., C.). — A. McElroy, Ormiston.
- Oxenford F.G.A. (B.).—A. K. G. Watt, Upper Coomera.
- Palmwoods F.G.A. (B., P., O., C.).—J. L. Smith, Box 714, Palmwoods.
- Pomona F.C.A. Ltd. (B.).—H. V. Wood, Pomona.
- Rochedale L.P.A. (B., P., O., C.).—N. Stewart, Rochedale, Eight Mile Plains.
- Redland Bay F.C.A. Ltd. (B., P., O., C.).—C. T. Outridge, Redland Bay.
- R.K.L.M. F.C.A. Ltd. (B., P., O., C.).—T. E. O'Doherty, Lamb Island, via Redland Bay.
- Russell Island F.C.A. (B., O., C.).—D. MacInnes, Russell Island, via Redland Bay.
- Repulse Bay F.G.A. (B.).—K. M. Isbel, Conway, via Proserpine.
- Rollingstone L.P.A. (B., P., O., C.).—G. E. Tooth, Rollingstone, via Townsville.
- Russell River Banana and Producers' Assoc. (B., O.).—H. R. Gardiner, Russell River Settlement, Bartle Frere, N.Q.
- Sarina L.P.A. (B.).—H. Jacobson, Sarina, N.Q.
- Sunnybank F.G.A. (P., C., O.). — D. M. Henderson, Sunnybank.
- South Tamborine L.P.A. (C., O.).—E. J. Jenyns, Tamborine.
- Takura L.P.A. (C., P., O.).—J. H. Montgomery, Takura.
- Tanby L.P.A. (B., P., O., C.).—R. F. Strange, Tanby.
- Tamborine Mt. L.P.A. (C., O.).—H. Curtis, North Tamborine.
- Tallebudgera Banana Growers' Assoc.—F. Dolan, Junr., Tallebudgera.
- Tinana, F.G.A. (P., C., O.). — E. Copley, Tinana, via Maryborough.
- Upper Brookfield L.P.A. (P., O.).—J. Phillips, Upper Brookfield.
- Upper Kedron L.P.A. (P., B., O., C.).—A. Pickering, Ferny Grove.
- Upper Tallebudgera and Mt. Cougal F.G.A. (B.).—E. H. Crease, West Burleigh.
- Villeneuve F.C.A. (B.).—E. Axelsen, Villeneuve, Kilcoy L.
- Victoria Point L.P.A. (B., P., O., C.).—E. Willmott, Victoria Point.
- Valdora L.P.A. (B.).—J. Leach, Valdora, via Yandina.
- Wamuran and Dist. F.C.A. (B., P., C.).—H. S. Franks, Wamuran.
- Woodford Banana Growers' Assoc. (B.).—W. W. Crocker, Stanmore, Woodford.
- Wellington Point F.C.A. (B., P., O.).—J. E. Apps, Wellington Point.
- Woombye Fruitgrowers Ltd. (B., P., O., C.). — E. E. McNall, Woombye.
- Wynnum L.P.A. (P., O.).—F. J. Moore, Brisbane-road, Wynnum West.
- Waterloo L.P.A. (B., P., C., O.). — C. F. Margetts, Waterloo, via Yandaran.
- Woondum L.P.A. (B.).—R. Staff, Woondum.
- Woolooga F.G.A. (B., O., C., P.).—W. P. Pedwell, Sexton, N.C. Line.
- Watalgan L.P.A. (C., B., P., O.).—A. W. Sommerfeld, Watalgan, N.C. Line.
- Yarwun-Jarginnie F.C.A. Ltd. (B., O., C.).—M. Spreser, Yarwun.
- Yeppoon L.P.A. (B., P., O., C.).—A. E. Pascoe, Yeppoon.
- Yandina and Dist. F.C.A. (B., P., O.).—F. Peachey, Cooloolabin, via Yandina.

(All Deciduous Associations)

Stanthrope L.P.As.

- Amiens L.P.A.—H. Edgar, Cottonvale.
- Applethorpe L.P.A.—H. G. Ludlow, Glen Niven.
- Bapaume L.P.A.—W. H. Bloxham, Bapaume.

Ballandean L.P.A.—A. H. Williams, Ballandean.
 Broadwater L.P.A.—M. Schneider, Box 93, Stanthorpe.
 Cottonvale L.P.A.—L. C. Evans, Cottonvale.
 Dalveen L.P.A.—A. G. White, Dalveen.
 Eukey, L.P.A.—J. Wilson, Eukey.
 Fletcher L.P.A.—W. H. C. Laird, Fletcher.
 Glen Aplin L.P.A.—N. A. Collins, Glen Aplin.
 Greenlands L.P.A.—J. Wylie, Spring Creek, Stanthorpe.
 Mt. Tully L.P.A.—V. Rummell, Sugarloaf-road, Stanthorpe.
 Pioneers L.P.A.—D. Ryan, Eukey, via Stanthorpe.
 Pozieres.—J. L. McMahon, Pozieres.
 Sevenlea L.P.A.—N. Smith, Sevenlea.
 Stanthorpe L.P.A.—C. H. Lower, Box 121 P.O., Stanthorpe.
 The Summit L.P.A.—A. D. Philp, The Summit.
 Thorndale L.P.A.—L. Smith, Thorndale, via Stanthorpe.
 Thulimbah L.P.A.—A. E. Fordyce, Thulimbah.
 Wyberba L.P.A.—J. R. Hickling, Bald Mt., Wyberba.

SOUTH AUSTRALIA.

Murray Citrus Growers' Association.

THE Murray Citrus Growers' Co-op. Association (Australia) Ltd., has its headquarters at 52 Pirie Chambers, Adelaide.

Central Executive (1934).

President—Mr. F. H. Metters (Murray View).

Members—Messrs. K. Dunstan and T. G. Heming (Waikerie); A. P. Wishart, C. Plush and A. V. Mills (Berri); J. Price and E. N. Seary (Renmark); J. Swanbury (Moorook and Kingston); K. F. Dowding (Mypolonga); J. J. Odgers (Ramco); R. B. Selth (Cadell), and A. R. Yeo (Barmera).

Management Committee (1934).

Chairman—Mr. F. H. Metters.

Members—Messrs. K. Dunstan, E. N. Seary, A. P. Wishart, and K. F. Dowding.

District Committees are established at Waikerie, Renmark, Berri, Mypolonga, Murray View, Moorook and Kingston, Ramco, Cadell, and Barmera.

The General Secretary is Mr. N. H. Underwood.

South Australian Fruitgrowers' and Market Gardeners' Association, Newmarket, Adelaide—Secretary, Mr. W. J. Kimber, New Market, Adelaide, S.A.

The following Associations are affiliated:—

The Hills Gardeners' and Market Men's Association.—Secretary, Mr. G. H. Collett, Summertown.

The Barossa Fruitgrowers' Association.—Secretary, Mr. A. J. Chapman, Nuriootpa.

WESTERN AUSTRALIA.

Fruitgrowers' Associations.

W. A. Fruitgrowers' Association. — Secretary, A. T. Booth, Mt. Barker.

W.A. Fruit Organisation Committee.—Secretary, C. H. Merry, Commercial Union Chambers, Perth.

Albany District Fruitgrowers' Association.—Secretary, C. E. Bolt, Box 28, Albany.

Bridgetown Fruitgrowers' Association. — Secretary, R. E. Doust, Bridgetown.

Manjimup Fruitgrowers' Association. — Secretary, A. C. Chatley, Bridgetown.

Primary Producers' Association. — Secretary, A. A. Penniford, Boyup Brook.

Eastern Districts Fruitgrowers' Association.—Secretary, T. H. Ilberry, Mundaring.

Denmark Fruitgrowers' Association.—Secretary, W. J. Kingston, Denmark.

Capel Fruitgrowers' Association.—J. H. Turner, Capel.

Mount Barker Fruitgrowers' Association.—Secretary, A. T. Booth, Mount Barker.

Donnybrook and Districts Fruitgrowers' Association.—Secretary, C. R. Moore, Donnybrook.

West Australian Stone Fruitgrowers' Association. — Secretary, W. Hart, Roleystone.

W.A. Citrus Association. — Secretary, H. A. Smith, "Wykeham," Gosnells.

Gosnells District Growers' Association.—Secretary, A. Nock, Albany-road, Gosnells.

Spearwood District Fruitgrowers' and Market Gardeners' Association.—Secretary, J. Rollinson, Spearwood.

Harvey Agricultural Society.—Secretary, W. E. Eyres, Harvey.

TASMANIA.

State Fruit Advisory Board.—A. J. Honey, Secretary, Bursary House, Hobart. Tel. Hobart 4857.

Fruitgrowers' Associations:

Port Huon Fruitgrowers' Co-operative Association Ltd.—General manager, J. P. Piggott, Davey-street, Hobart.

Bagdad Fruitgrowers' Co-operative Association.—Secretary, A. Gillow, Bagdad.

Tamar Farmers and Fruitgrowers Association. — E. O. Lucas, Secretary, Loira, West Tamar.

Tamar Valley Co-operative Company Ltd.—Secretary, L. Taylor, Exeter.

Clarence Point Co-operative Orchard Company. — Col. Oliver, Clarence Point.

Tasmanian Orchardists and Producers' Co-op. Association Ltd.—Manager, C. Cane, Murray-street, Hobart.

Derwent Valley Fruitgrowers' Co-operative Co. — Secretary, H. Morgan, New Norfolk.

Spreyton Fruitgrowers' Co-operative Company. — Secretary, A. Heath, Spreyton.

Tasmanian Farmers, Stockowners and Orchardists' Association. — A. J. Honey, Secretary, Bursary House, Hobart.

Northern Victoria.

Northern Victoria Fruitgrowers' Association. — Secretary, S. P. Cornish, Ardmona.

Affiliated Associations.

Ardmona Fruitgrowers' Association.—Secretary, S. P. Cornish, Ardmona.

Bamawn District Fruitgrowers' Association.—Secretary, P. Glasson, Rochester.

Kyabram Fruitgrowers' Association.—Secretary, G. F. Markham, Kyabram.

Lancaster Fruitgrowers' Association.—Secretary, T. Hughes, Lancaster.

Merrigum Fruitgrowers' Association.—Secretary, F. S. Salter, Merrigum.

Shepparton Irrigators' Association.—Secretary, N. W. Fairless, Shepparton East.

Tatura Fruitgrowers' Association.—Secretary, J. G. S. Rose, Tatura.

Toolamba Orchardists' Association. — Secretary, J. Agnew, Mooroopna.

Tongala Fruitgrowers' Association.—Secretary, D. E. Barry Wood, Tongala East.

FRUITGROWERS' ASSOCIATIONS IN VICTORIA.

Bairnsdale Fruitgrowers' Association (R. C. Matthews, Bairnsdale).

Bunyip, Garfield and Tynong Fruitgrowers' Association, Bunyip.

Burwood East Fruitgrowers' Association (G. C. Karnaghan, Blackburn).

Croydon Horticultural Association (R. P. Menzies, Croydon).

Doncaster Fruitgrowers' Association (G. S. Grover, Doncaster).

Diamond Creek Fruitgrowers' Association (R. M. Finlay, Diamond Creek).

Dunolly and District Fruitgrowers' Association, Betley. Gippsland Fruit Marketing Association (W. H. Carne, Pakenham Upper).

Gorae Fruitgrowers' Association, Gorae, via Portland. Harcourt Fruitgrowers' Progress Association Ltd. (C. Hull, Harcourt).

Harcourt Fruit Supply Company (C. Wilson, Harcourt). Narre Warren Fruitgrowers' Association, Narre Warren.

Northern Victoria Fruitgrowers' Association (S. P. Cornish, Ardmona).

Orchardists' and Fruit Cool Stores' Association of Victoria (H. J. Noonan).

Panton Hill Fruitgrowers' Association, Panton Hill. Quantong Fruitgrowers' Association (C. H. Jost, Quantong).

Somerville Fruitgrowers' Association (A. F. Telford, Somerville).

Southern Fruitgrowers' Association (J. W. Aspinall, Box Hill).

Shepparton Irrigators' Association, Shepparton.

Silvan Fruitgrowers' Association, Silvan.

Strathfeldsaye Fruitgrowers' Association, Strathfeldsaye.

Tyabb Fruitgrowers' Association, Tyabb.

United Berry Growers' Association (J. M. Mitchell, Wandin).

Victorian Central Citrus Association, A. W. Schwennesen, manager, 360 Collins-street, Melbourne.

Victorian Fruit Marketing Association (R. E. Boardman, 64 Elizabeth-street, Melbourne).

Wandin District Fruitgrowers' Association, Wandin North.

Yarra Glen Fruitgrowers' Association, P.O., Steel's Creek.

COOL STORES' ASSOCIATIONS.

The Orchardists' and Fruit Cool Stores' Association of Victoria.—Secretary, H. J. Noonan, Donvale. Affiliated stores and secretaries, as under:—

Interstate—

Batlow, N.S.W.—H. V. Smith, Manager, Batlow, N.S.W. Bender & Co., 100 Elizabeth-street, Launceston, Tas.

Victoria—

Ardmona Fruit Products, Moorcopna.

Blackburn—G. C. Karnaghan, Blackburn.

Bunyip—L. Thomas, Bunyip.

Burwood East—G. C. Karnaghan, Blackburn.

Croydon—Robt. Langley, Kilsyth.

Diamond Creek—R. M. Finlay, Diamond Creek.

Doncaster East—W. Johnston, Cottage-street, Blackburn.

Doncaster West—A. T. Tully, Main-road, Doncaster.

Harcourt—H. M. McLean, Harcourt.

Hastings and District—G. H. Sprague, Hastings.

Mount Waverley—David Peck, Tally Ho.

Orchardists—G. S. Grover, Doncaster.

Pakenham—T. E. Butler, 358 Collins-street, Melbourne.

Portland—H. M. Williamson, Portland.

Ringwood—J. G. Aird, Ringwood.

Somerville—T. E. Butler, 358 Collins-street, Melbourne.

Tyabb and District—Miss H. A. Foristal, Tyabb.

Wandirna—F. J. Byrne, Bayswater.

Private Stores—

Messrs. J. Brunning & Sons, Somerville.

Elinora Orchards—A. P. Stott, Wheelers Hill.

Graceburn Valley—A. E. Hocking, 31 Queen-street, Melbourne.

R. E. Haysey, Narre Warren North.

A. E. Ireland, Beverley-street, Doncaster.

W. Lipscombe, Croydon.

Two Bays Nurseries Co., Moorooduc.

Thomas & Co. Pty. Ltd., E. H. Hatfield, Tynong.

VICTORIAN CENTRAL CITRUS ASSOCIATION
PTY. LTD.

422 Collins-street, Melbourne; General Manager, A. W. Schwennesen.

Branches and Secretaries.

Murrabit District Citrus Association — Secretary, J. H. Morton, Gonn Crossing, via Kerang.

Bamawm Citrus Association Ltd. — Manager, W. Chapman, Lockington.

Lake Kangaroo Packing Co. Pty. Ltd.—Manager, H. S. Argyle, Mystic Park.

Mildura Citrus Association — Secretary, H. Wormwell, 15th Street, Irymple.

Merbein Citrus Growers' Association—Secretary, A. Leng, Merbein.

Nyah Citrus Association—Secretary, T. F. McKay, Nyah West.

Echuca Citrus Association—Secretary, O. F. Howell, "Rondell," Echuca.

Kyabram Citrus Association—Secretary, F. C. Cooper, "Coralbank," Kyabram.

Shepparton Irrigators' Association — Secretary, N. W. Fairless, Shepparton.

Wangaratta Citrus Association—Secretary, J. P. Larkings, Wangaratta.

Tongala Citrus Association — Secretary, G. V. Wood, Miller-street, Tongala.

Nanneella Citrus Association—Secretary, J. Logan, Nanneella.

Red Cliffs Citrus Association—Secretary, C. H. Cameron, Box 84, Red Cliffs.

Long Lake Citrus Association—Secretary, C. V. Rees, "Bloomfields," Lake Boga.

Curlwaa Co-op. Packing Society Ltd. — Manager, L. R. Strother, Curlwaa, N.S.W.

Cobram Fruit Packing Co. Pty. Ltd.—Manager, L. F. Edwards, Cobram.

Leeton Fruitgrowers' Co-op. Society Ltd.—Secretary, C. R. Glover, Farm 540.

Cain Bros., Madowla Park, Picola.

Rupert J. Watson, Perricoota, via Moama, N.S.W.

P. Rossiter, Ngawee, Cobram.

1935

JANUARY							FEBRUARY							MARCH						
SUN	MON	TUE	WED	THU	FRI	SAT	SUN	MON	TUE	WED	THU	FRI	SAT	SUN	MON	TUE	WED	THU	FRI	SAT
....	....	1	2	3	4	5	....	....	....	....	....	1	2	....	....	....	....	....	1	2
6	7	8	9	10	11	12	3	4	5	6	7	8	9	3	4	5	6	7	8	9
13	14	15	16	17	18	19	10	11	12	13	14	15	16	10	11	12	13	14	15	16
20	21	22	23	24	25	26	17	18	19	20	21	22	23	17	18	19	20	21	22	23
27	28	29	30	31	....	....	24	25	26	27	28	....	....	24 ²⁴ / ₃₁	25	26	27	28	29	30
APRIL							MAY							JUNE						
SUN	MON	TUE	WED	THU	FRI	SAT	SUN	MON	TUE	WED	THU	FRI	SAT	SUN	MON	TUE	WED	THU	FRI	SAT
....	1	2	3	4	5	6	....	....	....	1	2	3	4	....	....	....	....	....	....	1
7	8	9	10	11	12	13	5	6	7	8	9	10	11	2	3	4	5	6	7	8
14	15	16	17	18	19	20	12	13	14	15	16	17	18	9	10	11	12	13	14	15
21	22	23	24	25	26	27	19	20	21	22	23	24	25	16	17	18	19	20	21	22
28	29	30					26	27	28	29	30	31		25 ²⁵ / ₃₀	24	25	26	27	28	29

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JULY							AUGUST							SEPTEMBER						
SUN	MON	TUE	WED	THU	FRI	SAT	SUN	MON	TUE	WED	THU	FRI	SAT	SUN	MON	TUE	WED	THU	FRI	SAT
....	1	2	3	4	5	6	....	....	....	....	1	2	3	1	2	3	4	5	6	7
7	8	9	10	11	12	13	4	5	6	7	8	9	10	8	9	10	11	12	13	14
14	15	16	17	18	19	20	11	12	13	14	15	16	17	15	16	17	18	19	20	21
21	22	23	24	25	26	27	18	19	20	21	22	23	24	22	23	24	25	26	27	28
28	29	30	31	....	....	....	25	26	27	28	29	30	31	29	30	....	....	....	....	....
OCTOBER							NOVEMBER							DECEMBER						
SUN	MON	TUE	WED	THU	FRI	SAT	SUN	MON	TUE	WED	THU	FRI	SAT	SUN	MON	TUE	WED	THU	FRI	SAT
....	....	1	2	3	4	5	....	....	....	....	....	1	2	1	2	3	4	5	6	7
6	7	8	9	10	11	12	3	4	5	6	7	8	9	8	9	10	11	12	13	14
13	14	15	16	17	18	19	10	11	12	13	14	15	16	15	16	17	18	19	20	21
20	21	22	23	24	25	26	17	18	19	20	21	22	23	22	23	24	25	26	27	28
27	28	29	30	31	....	....	24	25	26	27	28	29	30	29	30	31	....	....	....	....